Pyramidal Deliberative Democracy

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ABSTRACT

This dissertation has two main objectives. First, to outline an ICT-facilitated model of democracy called 'pyramidal democracy' that reconciles deliberative democracy with mass engagement. Second, to suggest how this model of democracy might engender the democratisation of the global economy and thus the provision of a basic level of economic security for all global citizens. At the core of the model is the pyramidal deliberative network, a means of organising citizens into small online deliberative groups and linking these groups together by means of an iterative process of delegate-selection and group-formation. The pyramidal network enables citizens to aggregate their preferences in a deliberative manner, and then project social power by authorizing the delegates at the top-tier of the pyramidal network to communicate their social demands to elected officials or to other points of authority. The envisioned outcome is the democratisation of the public sphere by means of the proliferation of deliberative networks in the government, market, and civil society spheres. Transnational pyramidal networks may make it feasible to instantiate a new citizen-based schema of global governance and, thereby, facilitate the reform of the United Nations and enable a transition towards global peace, sustainability, and distributive justice. Distributive justice might be achieved by means of implementing the six components of a democratised economy: participatory budgeting, fee-and-dividend taxes, a basic income, monetary reform, workplace democracy, and the sharing economy. Taken together, these components might enable the universal provision of a social minimum – a universal basic income sufficient for basic security and real freedom. Taken to its logical conclusion, a democratised economy may also enable a transition towards a post-scarcity economic order characterised by a maximal stock of humanmade and natural capital that would not exceed the sustainable carrying capacity of the earth.

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1. Introduction

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1.1 Overview

When broaching the subject of the scope and meaning of civilization, J.S. Mill (1861) suggests that three attributes are important: intelligence, property, and the power of combination. He thus suggests that civilisation is premised on the broad-based distribution of practical knowledge and reasoning, the capacity to generate prosperity, and the propensity and capability of citizens to cooperate. The third attribute is thus the basis of civilisation because it enables citizens to harness the first attribute in the interests of engendering the second attribute; to generate prosperity by harnessing knowledge and reason to cooperative activity. The premise of this dissertation is that ICT (information communication technology) holds the potential to engender new powers of combination, and thus the possibility for greater prosperity, knowledge, and reason.

My main objectives in this dissertation are thus twofold. The first objective is to outline and defend a model of digital deliberative democracy called pyramidal democracy. The core claim I make is that this model could reconcile deliberative democracy with mass engagement. This means, specifically, that citizens – by the tens of millions – could articulate and then aggregate their preferences by means of deliberation and public reasoning, and then make coherent social demands for the implementation of policies that reflected those preferences. My second objective is to show how this model of democracy might, in turn, enable the democratisation of the global economy, such that every global citizen is provided with greater material security and a greater capacity for self-actualization and self-development.

Our point of departure is twofold. First, that contemporary civilisation finds itself at the intersection of multiple interrelated crises: political, economic, ecological. Because these problems are complex and interrelated, we can consider them to be ‘wicked’ problems that are best solved by means of

collaborative strategies that involve all stakeholders in iterative processes of problem-solving. Second, that advanced technology – like machine learning, artificial intelligence, and automation – increasingly make a post-scarcity economic system feasible. By post-scarcity we do not mean the radical abundance of material goods, but rather the idea that no inherent limitations exist that prevent providing for the basic needs of all global citizens. Post-scarcity thus entails the provision of a social minimum – in the form of an unconditional basic income – sufficient for all global citizens to meet their basic needs.

What we suggest, moreover, is that solving the interrelated crises of the 21st century – political, economic, ecological – entails a transition towards post-scarcity. In other words, we cannot solve these problems without ensuring that all basic needs are met and that citizens have real opportunities for self-actualization and self-development. Our arguments are thus couched between two possibilities: the ongoing entrenchment of crisis, on one hand, and the resolution of those crises by means of a post-scarcity economic system, on the other. Resolving the crises – and transitioning towards post-scarcity – is likely only to be feasible under conditions of a collaborative process of problem-solving that involves all stakeholders; i.e. all global citizens.

This brings us to our second major contention: that the dominant political system – an equilibrium or aggregative model of democracy – is insufficient for enabling citizens to resolve the interrelated crises, let alone enable a transition towards post-scarcity. We submit two reasons for this claim. First, this market-orientated model of democracy understands citizens simply as consumers who 'spend' votes in elections in order to select the best 'product' from among several competing political entrepreneurs. This model thus *deemphasises* the value of political participation and *emphasises* the functional importance of apathy; the role of citizens is not to engage in collective decision-making but rather to authorise elites who will make those decisions on their behalf. If the political system deemphasises participation, it is unclear how collaborative processes of stakeholder problem-solving are to take place. Second, this model of democracy engenders several concomitant problems that further reduce the feasibility of resolving the interrelated crises: party cartels, short-term thinking, self-referential thinking, elite capture, institutional drift, and weak multilateralism. These problems are antithetical to the collaborative and forward-thinking strategies that are necessary for resolving the interrelated crises and transitioning towards post-scarcity. The dominant model of democracy is thus insufficient for such a resolution and transition.

A participatory/deliberative model of democracy, on the other hand, is entirely premised on citizen engagement and participation. This model understands democracy as a substantive way of life, and not merely as a system of government. It expects democracy to be a system of interactions whereby

equal citizens deliberate under conditions of equality, and so determine – through public reasoning and participation – their own means and ends. It is premised, necessarily, on some measure of economic equality. Finally, it sees the ends of democracy as the self-actualization of all human beings, of their reaching their own potentialities as thinking and feeling beings. What we would suggest then, is that the participatory model aligns well with the kind of broad-based stakeholder collaboration that would be necessary for resolving the interrelated crises of the 21st century, and, thereby, transitioning towards post-scarcity.

It has never been feasible, however, to implement the participatory model in populations larger than a few thousand citizens; we simply cannot expect hundreds of millions of citizens to be able or willing to engage *en masse* in the kind of face-to-face deliberative engagement that is at the heart of the participatory model. The problems of scale and the economy of time, therefore, make the participatory model infeasible in practice. These problems, however, might be solved by means of ICT: the rapid penetration of the internet and the broad-based adoption of smartphones now make it feasible for hundreds of millions of citizens to interact in real-time and at low cost. Hence, we suggest that ICT might enable us to reconcile the participatory/deliberative model of democracy with mass engagement.

The key to doing so is the formation of pyramidal networks, where: 1) citizens organise into small groups online, in order to; 2) communicate, deliberate, and elect delegates; 3) who then self-organise further into small groups at the next highest tier of the pyramid; 4) with this process repeating itself until all citizens at the base of the pyramid are represented by a small group of delegates at the top of the pyramid. Let us consider, for example, a group of 1000 citizens. By means of a bespoke computer application, these citizens would self-organise into 100 groups each comprising 10 citizens. Each group would elect a delegate to represent their preferences at the next tier of the network. These 100 delegates would then self-organise into 10 groups each comprising 10 delegates. Each delegate group would elect a meta-delegate to represent their preferences at the next tier of the network. This top-tier group would comprise 10 meta-delegates, and thus represent the combined and aggregated preferences of all 1000 citizens at the base of the pyramid.

Pyramidal networks are thus scale-independent; they operate in the same way no matter how large they become. While a network comprising one thousand citizens would have three tiers, a network comprising ten billion citizens would have just ten tiers. Thus, in a pyramidal network comprising all seven billion global citizens, there would be just eight intermediary delegates between a citizen at the base of the network and a delegate at the top-tier of the network. If a bespoke application could be designed to organise citizens by means of pyramidal networks, and a means was found to incentivise

meaningful deliberation and preference aggregation by means of such networks, then it might be possible to reconcile deliberative democracy with mass engagement, and thus implement a participatory model of democracy. If such a model proved effective in practice, then it might be feasible to resolve the interrelated crises of the 21st century by engaging all stakeholders in an iterative process of problem-solving. Thus, we suggest that the interrelated crises might be solved – and a transition towards post-scarcity facilitated – by means of an ICT-facilitated model of participatory/deliberative democracy premised on pyramidal networks. The bulk of this dissertation deals with the feasibility and desirability of such a model.

Without going into detail here, we can note that the feasibility of the model rests on a series of assumptions we make about the design criteria of our bespoke application and how it might enable citizens to self-organise into pyramidal networks, meaningfully deliberate, aggregate their preferences, and then project social power by making demands for the implementation or modification of policy.

We suggest that the problem of meaningful deliberation and aggregation can be solved by means of a process we call *compression*. Compression enables small groups of citizens to collaboratively articulate and merge their preferences by means of communication, deliberation, voting, and compromise. This process takes place at each tier of the pyramid, with delegates using the compressed preferences of their constituents as the basis for new cycles of communication, deliberation, voting, and compromise. The end result is a compressed set of preferences at the top-tier of the pyramidal network that represent the core themes and positions expressed by citizens at the base of the pyramid. By means of compression, then, a pyramidal network is transformed into a *pyramidal deliberative network* where delegates at the top-tier of the network represent the considered and aggregated preferences of all citizens at the base of the network.

A pyramidal deliberative network, moreover, is transformed into a *democratic mechanism* under conditions where the network comprises an issue-public – citizens concerned with one or more issue of common concern – and where the top-tier delegates of the network become empowered to engage with *points of authority* – state officials or corporate spokespeople, for example – such that the concerns of citizens are meaningfully taken into account. Because democratic mechanisms derive legitimacy from the size and the activeness of their underlying pyramidal network, very large and active mechanisms, we argue, would be more difficult to ignore and thus points of authority would have little option but to engage with them. If this were the case, then democratic mechanisms would *de facto* project a form of social power.

If our assumptions are correct regarding the feasibility of citizens projecting social power by means of democratic mechanisms, then we might expect such networks to proliferate over time. Because pyramidal networks are scale-independent, moreover, nothing would prevent large transnational networks forming that comprised millions or tens of millions of citizens. This would enable citizens to make social demands for the implementation and modification of national or global policy. In due course, we might also expect formal *pyramidal democracies* to form – where top-tier delegates assumed formal powers and responsibilities. A local government, where the elected officials were selected and elected by means of pyramidal networks, would be a key example of a formal pyramidal democracy.

Over time – and due to certain feedback loops – we might expect a *landscape of pyramidal networks* to form, meaning that deliberative networks and democratic mechanisms would increasingly come to constitute the government, market, and civil society spheres. In other words, we might expect pyramidal networks to form – at the local, national, and global level – that were related to governments, countries, political parties, firms, corporations, sports organisations, trade unions, interest groups, and social movements. A landscape of pyramidal networks thus implies the possibility of a *democratised public sphere* where the concerns and ideas of citizens became meaningfully linked to the implementation and modification of policy at all levels of society. What this implies, in turn, is the possibility of *broad configurations* – multi-dimensional configurations that comprise pyramidal networks from multiple spheres across government, the market, and civil society. A key example is an SMU (Social Movement Union) configuration that would comprise multiple independent networks – like trade unions, social movements, educational institutions, and environmental groups – all connected together due to one or more shared interest or concern.

Large SMU configurations – comprising millions or tens of millions of citizens – may become legitimate enough to make coherent social demands for the implementation of policy that would help to resolve the interrelated crises of the 21st century. Thus, we might begin to see how our ICT-facilitated model of democracy might enable the kind of collaboration necessary for the resolution of the interrelated crises. If the formation of such large configurations is feasible, we contend, then it may be feasible to make credible social demands at the national and global level. Two possibilities thus arise: a transformation of global governance by means of transnational pyramidal networks, and the democratisation of the global economy by means of six specific components or sets of policies. Both possibilities invoke the potential for resolving the interrelated crises and transitioning towards post-scarcity.

The possibility of transnational pyramidal networks engenders the possibility, in turn, of four new forms of global representation: SMU configurations, global political parties, interparliamentary institutions, and a global People's Assembly – a representative assembly, twin to the United Nations General Assembly, but separate and independent from the individual nation-state. Without going into detail here, these forms of representation might enable a *citizen-based schema of global governance* where the individual citizen replaces the nation-state as the key unit of analysis. If such a schema of global governance became feasible, then it might empower citizens to make global-level social demands for the implementation or modification of policy. This might facilitate, in turn, the reform of the United Nations and a transition towards global peace; conditions necessary and concomitant to the resolution of the interrelated crises.

The possibility of a democratised public sphere – a landscape of pyramidal networks comprising the government, market, and civil society spheres – engenders also the possibility of democratising the global economy. Our model of a democratised global economy is premised on the implementation of six components: participatory budgeting, fee-and-dividend taxes, a basic income, monetary and investment reform, workplace democracy, and the sharing economy. Each component is implemented over three phases and each phase corresponds roughly to sets of social demands made at the local, national, and global level. There is thus *interaction* and *interplay* between the components, such that the implementation of the phase-one aspect of the components set precedents that make the phase-two and phase-three implementation more feasible. In this sense, each component drives the formation of larger and more legitimate pyramidal networks, and thus facilitates larger and more extensive social demands for the implementation or modification of policy. The envisioned endpoint of the democratisation of the global economy is the provision of a universal basic income sufficient for providing all global citizens with basic security and real freedom.

A democratised global economy – made possible in part by a citizen-based schema of global governance – is thus constitutive of the collaborative and iterative process of stakeholder engagement necessary for the resolution of the interrelated crises of the 21st century. Taken to its logical conclusion, moreover, it is also constitutive of a transition to a post-scarcity economic order characterised by a maximal sustainable stock of humanmade and natural capital. Thus, if pyramidal democracy proves feasible and efficacious, then it might enable the resolution of the interrelated crises and a transition towards post-scarcity.

Thus, to conclude this overview, our key argument in this dissertation is that democracy can be reconciled with mass engagement by means of ICT. The key means of doing so is solving the problem of scale by means of pyramidal networks. If solving this problem enables citizens to participate at low

cost, and if pyramidal networks become large enough to project social power, then citizens may become sufficiently empowered to make social demands for the implementation or modification of policy. The more that these social demands were met, the more legitimate and effective we might expect pyramidal networks to become. Given a public sphere comprised of multiple overlapping configurations of networks, it may be feasible to gradually democratise national and global governance. This might enable the democratisation of the global economy and thus resolve the interrelated crises of the 21st century by means of a transition towards post-scarcity.

1.2 METHODOLOGY

We do not consciously deploy a methodology in this dissertation. This being said, we suggest that the argument is broadly informed by practical reasoning, pragmatism, and critical theory.

By practical reasoning we mean a process of reasoning about 'what to do' about the problem at hand, the interrelated crises. Hence, our reasoning is practical because it is concerned with action; i.e. how to bring certain actions about that would resolve the problem. Furthermore, it is practical in its consequences; i.e. the intention is ultimately to "move people to act" (Wallace 2018: 1). Thus, we are far less concerned with matters of truth and falsity; we are not trying to ascertain the objective truth of the problem, or what we *should* believe about the problem. Matters of truth and belief are related more to theoretical reasoning. Practical reason, by contrast, is concerned "not with the truth of propositions but with the desirability or value of actions" (2). This does not mean that we are uninterested in truth – empirical evidence must guide our reasoning about what actions we might take – but, at the same time, we are not trying to prove the *truth* of those actions, but rather their desirability under certain assumptions related to the consequence of their outcomes. In this sense, the arguments in this dissertation are like an architect's blueprint – a broad sketch of how the problem *might* be solved – rather than any description of objective truth.

This focus on practical reasoning is closely connected with philosophical pragmatism, particularly the pragmatism of John Dewey. Pragmatism entails the following philosophical views: a metaphysics that emphasizes processes and relations; an evolutionary understanding of human existence; an analysis of intellectual activity as problem-orientated; and an emphasis on "the democratic reconstruction of society through educational and other institutions" (Campbell 1995: 14). In this sense, pragmatism is both about antiscepticism and fallibilism: that doubt requires *just* as much justification as belief, and that there are "no metaphysical guarantees to be had that even our most firmly-held beliefs will never need revision" (21). The idea that one can be both antisceptical and fallibilistic is "perhaps *the* basic insight of American Pragmatism" (Putnam 1995: 21).

Thus, the arguments that comprise this dissertation are rooted in the idea that humankind is in constant movement, that all truths and accepted wisdoms are negotiable, and, moreover, that one of the primary functions of intellectual inquiry is to solve social problems. Hence, also, the "primacy of practical reason" and the idea that our cognitive ideals only make sense when "considered as part of our idea of human flourishing" (Putnam 1995: 43). In this sense, the arguments in this dissertation are orientated always towards the potentialities for improving society and its institutions. We should bear in mind these themes at all times.

The practical instantiation of a pragmatist mindset is fully realised in Dewey's concept of social reconstruction and of democracy as cooperative experimentation. Social reconstruction works on two levels. The first level comprises the formulation of problems and the selection of potential solutions. The second level comprises the "public testing and evaluating of ideas and proposals" that experts and others have put forward, and the implementation of those that are found to be effective (Campbell 1995: 151). Social reconstruction as cooperative experimentation is thus the function of democracy; it is the coming-together of real-world communities in order to cooperatively interrogate the nature of social problems, and then develop and iteratively test solutions. As Dewey notes, the work of social reconstruction can be done "only by the resolute, patient, cooperative activities of men and women of good will, drawn from every useful calling, over an indefinitely long period" (cited in Campbell 1995: 149).

A program for democracy as a cooperative experiment entails three aspects (Campbell 1995: 207-8). First, it is situational in the sense that it deals with satisfying social needs and is tailormade for the situation and circumstance of its stakeholders. There are no universal formulae. Second, it is flexible and hypothetical in the sense that it should be envisioned as an experiment that requires continuous testing and ongoing modification. Third, the program must be derived cooperatively by the stakeholders themselves. Programs that are not subject to rigorous critical examination and debate would contradict the very idea of cooperative experimentation. For Dewey, then, political activity is a "kind of educational experience, and its method is cooperative inquiry" premised on deliberately setting out to identify and solve problems (Campbell 2008: 24).

Democracy as cooperative inquiry requires the broad-based formation and revitalisation of communities, a community understood as involving three aspects: 1) association or interaction of persons; 2) interaction on the basis of common interests and shared values, and thus on the basis of *shared action*; and 3) a sense of collectivism; the 'I' must be replaced to some extent with a 'We' (Campbell 1995: 174). The coming of the 'Machine Age', Dewey (1927: 98) argues, has resulted in a Great Society – a technologically powerful society – but not a Great Community. The national and

global public remains inchoate and unorganised; local communities find themselves without "intent or foresight" and find their affairs "conditioned by remote and invisible organizations". If the public is to "form itself", then it must necessarily break with existing political forms because these "inherited political agencies" prevent rather than facilitate the organisation of this new public (31).

Thus, the primary problem for the public is the intellectual search for the conditions under which "the Great Society may become the Great Community" (147), a great community comprising a multitude of confederated local communities premised on democratic cooperative experimentation. Pre-empting the idea of post-scarcity, moreover, Dewey notes that "when the machine age has… perfected its machinery" it will be the means by which the good life will be possible for all, rather than the "despotic master" of most. Democracy – and the perfection of the machine age – will thus have its consummation when "free social inquiry is indissolubly wedded to the art of full and moving communication" (184). Hence, the essential precondition for real democracy and freedom is the "improvement of the methods and conditions of debate, discussion and persuasion" (208). Achieving that precondition is "*the* problem of the public" (ibid).

Our key objective in this dissertation, as we noted above, is to outline the technological feasibility of reconciling deliberative democracy with mass engagement. We can now see how this objective relates to a Deweyan conception of pragmatism. Our model of ICT-facilitated democracy is intended to solve "*the* problem of the public" by instantiating methods of debate, discussion and persuasion, and by wedding "free social inquiry" to the "art of full and moving communication". Doing so, we contend, is the means by which communities can be formed and revitalised, by which social reconstruction can begin, and by which the Great Society can be transformed into the Great Community. By these means, also, the advanced technology of the machine age can be "perfected" and a transition towards post-scarcity begun. We necessarily return to these claims in our conclusion.

Our third primary influence is critical theory. Critical theory relates in a narrow sense to the work of several generations of German philosophers – the Frankfurt School – and in a broader sense to sets of theories concerned with emancipating and liberating humankind from all forms of material and ideological oppression (Bohman 2016). Critical theory is thus transdisciplinary, seeking to develop an interplay between philosophy and social science orientated towards human emancipation.

A critical theory has three key components: it must be explanatory, practical, and normative. Thus, it must explain "what is wrong with current social reality", identify the actors that must change social reality, and must provide "both clear norms for criticism" and "achievable practical goals for social transformation" (ibid). There are thus striking similarities between critical theory and pragmatism.

Critical theory, moreover, is generally concerned with increasing the quality and extent of public deliberation and is thus closely connected with deliberative theories of democracy.

While the arguments that comprise this dissertation are rooted in critical theory, we would not go so far as to describe them as a self-contained critical theory. Instead, they might eventually form part of such a theory, specifically in the sense that pyramidal democracy provides the practical means by which global citizens could form communities and begin processes of transformation that would begin to fix what was "wrong" with current social reality. Geuss (1981: 76), for instance, notes that a critical theory is composed of three main parts:

1) A part that shows that a transition from the present state of society to some proposed state is objectively or theoretically possible, implying
    a. That the proposed state is inherently possible given the current state of technology and progress
    b. That it is possible to transition from the current to the proposed state by means of certain institutional changes
2) A part which shows that the transition is "practically necessary", that
    a. The present state is one of "reflectively unacceptable frustration, bondage, and illusion" and is thus engendered by some kind of false consciousness or faulty world-view on the part of citizens
    b. The proposed state will be one where this false consciousness has been overcome and citizens will be more capable of discerning their real interests
3) A part which asserts that the transition from the current to the proposed state will only come about if citizens "adopt the critical theory as their 'self-consciousness' and act on it"

Pyramidal democracy is concerned primarily with the first component of critical theory; i.e. that a world is possible where democracy is reconciled with mass engagement, and where, by means of social reconstruction, a post-scarcity economic order is possible. While the envisioned endpoint of pyramidal democracy does *imply* the second and third component, it is not our primary objective to argue that these outcomes are inevitable, or even likely. It remains to be seen whether citizens would fully harness the tools of cooperative democratic experimentation, or whether or not they would see pyramidal democracy as practically necessary. Moreover, we are not prepared to contend that pyramidal democracy is the *only* way of transitioning to the proposed state of post-scarcity, although no practicable alternative seems to suggest itself. In this sense, then, while our arguments are fundamentally connected with the critical theory tradition, it is not our objective to make any particular claims about that connection.

1.3 Chapter Summary

In this section, I provide a breakdown of the sequence of the argument as a whole. In the interests of clarity, I have placed the nine chapters into three broad categories: the circumstances of the problem, the consent (or consensus) required in order to solve the problem, and the steps required to converge towards a solution to the problem. These broad categories are not used in the dissertation as a whole; I introduce them here only to suggest the three broad sections of the overall argument.

1.3.1 Circumstance of the Problem

In Chapter 1, we introduce the twin concepts of crisis and opportunity; i.e. the idea that resolving the interrelated crises implies, to some extent, the opportunity of transitioning to a more equitable economic system premised on the universal provision of a social minimum.

1.1. Humankind is faced with three interrelated crises: environmental, economic, and political:
   a. The environmental crisis entails climate change, the disruption of ecosystem services, and the drawdown of natural capital.
   b. The economic crisis entails the concentration of wealth and the subsequent diminishment of global effective demand. This engenders increasing unemployment, underemployment, poverty, the further drawdown of natural capital, and a lack of investment in the productive capacity to fully harness the potential of advanced technology.
   c. Political systems, premised on limited citizen participation, are increasingly incapable of effective problem-solving. Widespread voter apathy and distrust in government prevail, further compounding the environmental and economic crises.

1.2. These crises can thus be characterised as 'wicked' problems:
   a. Due to their inherent complexity, they cannot be solved by linear thinking because each symptom of the problem is the result of complex interactions between multiple systems. Any total solution thus implies solutions to a host of smaller interacting problems.
   b. Solving wicked problems requires collaborative strategies based on iterative processes of information sharing, problem framing, critical argument, and then the formulation and testing of solutions. Such collaborative strategies thus require the participation of all stakeholders related to the problem in question; i.e. all global citizens.

c. The political system – premised on limited participation, and increasingly incapable of effective problem-solving – thus indicates the unlikelihood of resolving these wicked problems.

1.3. If global collaborative networks *could* be formed, however, it follows that the wicked problems might not only be resolved, but, in doing so, engender a more progressive and equitable economic system.

a. Advanced technology – exemplified by machine learning, artificial intelligence, and advanced automation – suggest the feasibility of a post-scarcity economic order; one where the provision of basic needs for all global citizens was assured. Realising post-scarcity thus entails three core requirements:

i. socio-economic institutions geared towards providing a social minimum

ii. socio-economic institutions that embrace advanced technology in order to develop a maximal stock of humanmade capital

iii. the embedding of i. and ii. within the carrying capacity of the planet, such that the throughput of energy and material of the global economy is sustainable.

b. The current technological potential of automation indicates the feasibility of meeting the first requirement and, in time, the second requirement.

c. Blockchain technologies may play a key role in facilitating automation in all spheres of the economy by accelerating peer-to-peer production, consumption, investment, and employment.

d. Thus, while rapid automation, and the confinement of advanced technology within a commodity framework, currently compound the economic crisis, these trends might also enable a post-scarcity economic order.

In Chapter 2, our key objective is to contrast the market-orientated equilibrium model of democracy with the participatory model. Our key contention is that the former model deemphasises participation and engenders multiple problems, making it insufficient for the resolution of the interrelated crises. The participatory model, on the other hand, appears eminently suitable for facilitating the kind of collaboration and engagement necessary for resolving the crises.

2.1. Liberal democracy is a somewhat paradoxical concept; with democracy requiring liberalism, but liberalism constraining democracy.

a. We outline five tenets of liberalism, noting that most are fully compatible with a more participatory model of democracy

b. We outline the eight conditions of Dahl's model of polyarchy, noting that the first, second, and eighth conditions are generally not met in the equilibrium model of

democracy. It is these conditions that we argue can be met by an ICT-facilitated model.

2.2. We trace various models of democracy from antiquity to the current day. Of note, is the fact that the ancient Athenian model of direct deliberative democracy was premised on full citizen participation, and thus sets a precedent for implementing the participatory model today.

2.3. The equilibrium model of democracy – dominant today – is premised on an analogy with the perfectly competitive marketplace. In this sense voters are consumers who 'spend' their votes in order to 'purchase' the best product – competing political entrepreneurs. Participation is deemphasised, and the functional importance of apathy is emphasised. The analogy with the competitive marketplace, however, does not hold:

   a. Voters, unlike consumers, have limited choice between competing political elites
   b. Voters have little incentive to become informed, and political parties little incentive to inform them.
   c. The formation of new political parties is severely constrained by the resources required to do so
   d. The party-political system is thus akin to an oligopoly where substantial competition is muted; a party cartel system tends to result where parties use the resources of the state to limit competition and ensure their own success
   e. This state of affairs engenders several key problems: short-term thinking, self-referential thinking, institutional drift, weak multilateralism, and capture by elites.
   f. The equilibrium model thus seems insufficient for resolving the interrelated crises

2.4. The participatory model, however, is premised on the idea that citizens and institutions cannot be considered in isolation from one another. Representative institutions are not enough by themselves to enable real democracy. Citizens must participate and engage in order to breathe life into democracy. The participatory model is thus based on the following premises:

   a. Only through participation are citizens able to become self-aware and thus truly identify their political interests.
   b. The major function of participation is thus educative: citizens learn democracy by doing it.
   c. Participation is the means and ends of distributing power more equally. Participation in the workplace is a key means of ensuring a more equal distribution of economic power.

d. Participation enables 'politics', while the equilibrium model enables mere statecraft. Real politics is thus about deliberation and engagement at the community level.
e. If resolving the interrelated crises requires increased participation and engagement, then it follows that the participatory model seems more appropriate than the equilibrium model.

2.5. The participatory model, however, has never before been implemented in a modern state. Drawing on Macpherson, we note that the participatory model could be implemented by means of a 'pyramidal council system': "a pyramidal system with direct democracy at the base and delegative democracy at every level above that". The problems of scale and economy of time, however, have thus far prevented the implementation of the participatory model. If ICT could solve these problems, however, then it might be feasible to implement the participatory model.

1.3.2 Consensus Required for Resolving the Problem

In Chapter 3, we lay the foundation for our ICT-facilitated model of participatory/deliberative democracy. First, we outline the various aspects of deliberative theory. Second, we evaluate the empirical evidence that supports the idea that deliberation engenders several beneficial outcomes. Third, we outline the design criteria required in order to enable citizens to meaningfully deliberate in an online environment. Fourth, we note the technological feasibility of deploying a bespoke application that would enable digital deliberation.

3.1. Deliberative theory entails the following functions:
a. Deliberation, public reasoning, political equality, non-tyranny, and epistemic outcomes.
b. The key idea here is that deliberative democracy is about a process of public reasoning among equals that does not result in tyranny.
c. We can also define deliberation in terms of the framing of problems and the deliberative development of potential solutions.
d. Deliberation can be more or less *complete* depending on the extent to which citizens remain civil and respond appropriately to the public reasoning of their peers

3.2. The empirical evidence supports the contention that deliberation among citizens does entail the five functions. After deliberation, people tend to look more like 'ideal' citizens. The evidence strongly supports this outcome for face-to-face deliberation. For online deliberation the results are more mixed.

3.3. Several design criteria can be incorporated in order to ensure that online deliberation is more ideal and more *complete*: asynchronous communication, pseudonymity, the availability of a moderator, high quality information, a reputation/gamification system, and a means of linking deliberation to real-world outcomes. These design specifications thus form the basis of our bespoke application, such that we can enable more complete online deliberation.

3.4. Given the rapid penetration of the internet and the broad-based adoption of smartphones, it is technologically feasible to deploy a bespoke application capable of connecting hundreds of millions of citizens together in real-time. Problem related to the 'digital divide' might be resolved over time.

In Chapter 4, we outline the conceptual stepping stones that describe the progression from pyramidal networks to full-blown formal pyramidal democracy. This sequence describes therefore how mass citizen engagement could be reconciled with deliberative democracy. We do not deal, in this chapter, with the underlying mechanisms that make pyramidal networks effective or with the key problems of participation and tyranny. We deal with these issues in the next chapter.

4.1. A pyramidal network is formed when a body of citizens self-select, or are randomly assigned, by means of our bespoke application, into small groups – deliberative microcosms – of roughly ten members. Each group then elects a delegate and the process repeats until all the citizens at the base of the pyramidal network are represented by a group of delegates at the top of the network.

   a. A pyramidal network is scale-independent; it operates identically whether it comprises 1000 or 100 000 000 citizens.
   b. A pyramidal network is the means by which we operationalise Macpherson's 'pyramidal councils system' and thus how we solve the problem of scale.

4.2. A pyramidal network is transformed into a pyramidal deliberative network when the process of compression is the means by which deliberations at various tiers are reconciled.

   a. Compression is an iterative process where each citizen in each group suggests a solution to the given problem and, by means of voting, editing, and compromise, merges those solutions into a more limited set of solutions.
   b. Citizens are incentivised to merge their solutions because delegates can represent only a limited number of solutions at the next highest tier.
   c. This process repeats until all the potential solutions framed at the base of the pyramid have been merged into a final set of solutions at the top of the pyramid
   d. Compression, in combination with the pyramidal network, is thus the means by which we reconcile deliberation with mass engagement.

4.3. A pyramidal deliberative network is transformed into a democratic mechanism when it is constituted by an issue-public and top-tier delegates become empowered to negotiate with points of authority on behalf of their constituents. Pyramidal democratic mechanisms are thus composed of various parts or functions: issue publics, wheel configurations, points of authority, and open communication.

   a. The key idea is that the top-tier delegates begin a process of communication with points of authority – elected officials or corporate spokespeople – in order to communicate the social demands or concerns of citizens.
   b. Wheel configurations enable multiple pyramidal networks to be combined in various ways.
   c. Communication is 'open' in the sense that all citizens can access any communication that is sent on their behalf.

4.4. Formal pyramidal democracies are formed when the top-tier delegates of a pyramidal network assume formal power and responsibilities. We deal primarily with two types of pyramidal democracy: political parties organised by means of deliberative networks, and state-level networks – networks comprising all the citizens of a nation-state.

   a. In order for formal pyramidal democracies to form, three components are required: a constitution that sets out the scope of authority and rights and responsibilities of citizens and delegates, rulesets that set when and how citizens and delegates can use their powers, and remuneration such that higher tier delegates are fairly compensated for their time. These components enable the formation of stable pyramidal networks and thus enable formal pyramidal democracies.
   b. Returning to Dahl's model of polyarchy (as mentioned in 2.1.b above), we note that a political system constituted as a pyramidal democracy would meet the first, second, and eighth condition of polyarchy: allowing citizens to insert their own alternatives for voting, providing near-identical information on alternatives, and ensuring that citizens have sufficient control over elected officials during the inter-election period. Pyramidal democracies might then engender greater levels of political equality by solving some of the flaws in polyarchy.
   c. Implementing intra-party democracy by means of pyramidal democracy might solve many of the problem identified with the equilibrium model (as mentioned in 2.3 above). In short, party-based pyramidal democracy might dismantle the party cartel system, enable more substantive inter-party competition, and lead to more effective problem-solving.

d. Formal pyramidal democracies might also engender new forms of political representation and new political systems:
    i. Distributed politics, where individual politicians competed on the basis of a pyramidal network of supporters, thus bypassing the party system.
    ii. Distributed government, where each ministerial portfolio is linked to a pyramidal network of citizens interested in that portfolio and where state budgets are allocated by means of participatory budgeting.
    iii. A Popular Branch of government constituted directly by a state-level pyramidal network of citizens, and thus augmenting the Judicial, Executive and Legislative Branches.
    iv. Compulsory participation – at a very low required threshold – in state-level pyramidal networks as the basis for national and global participatory budgeting.

In Chapter 5, we outline the underlying mechanisms that make pyramidal networks effective and enable citizens to meaningfully project power. We also deal with two key problems: the problem of participation and the problem of tyranny/co-optation. In Appendix IV we also deal with a host of issues related to the connection between pyramidal democracy and democratic theory: the role of social choice theory, the various criticisms levelled against deliberative democracy theory, the relationship between deliberative theory and pyramidal democracy, and the relation between pyramidal democracy and political representation, ideology, false consciousness, consent, consensus, and liquid democracy. This chapter – and the accompanying Appendix – conclude our central argument as to how a bespoke application might help to reconcile mass engagement and deliberative democracy.

5.1. In this section we outline the primary mechanisms that undergird the effectiveness of pyramidal networks.
    a. Four characteristics of pyramidal networks suggest the feasibility of democratic mechanisms enabling citizens to project power:
        i. Reflexive legitimacy: the larger and more active the network the more legitimate it is likely to be in the eyes of citizens.
        ii. Obtrusiveness: if networks have sufficient reflexive legitimacy, then authorities have few options but to engage with them; i.e. they are unignorable.
        iii. Uniformity: because pyramidal networks are uniform – they operate in identical ways no matter where they are deployed – once citizens become familiar with them in one context, the costs of using them in other contexts is

reduced. Uniformity thus suggests the possibility of the broad-based propagation of pyramidal networks.

iv. Modularity: pyramidal networks – like Lego blocks – can be combined and recombined into a variety of configurations. This makes it feasible to join disparate networks that share one or more interest, increasing reflexive legitimacy and obtrusiveness.

v. These four characteristics suggest the feasibility of citizens projecting social power and making social demands by means of democratic mechanism. If such mechanisms became large enough, then they would be impossible to ignore. If they could not be ignored, then they would have to be engaged with. Thus, they would *de facto* project a form of social power.

b. Following from these characteristics, we would expect democratic mechanisms to be effective, then, because they enable citizens to exercise 'voice' across all spheres of society. Citizens normally have two options when it comes to declining quality in organisations: voice or exit. Democratic mechanisms enable the communication of complaints cheaply and effectively and thus might drive incremental increases in the quality of organisations, including the political party and the nation-state.

c. Deliberative networks, thus, *structurate* citizens in such a way that they can become democratic agents. In other words, it is the unique way that pyramidal networks and compression channel the preferences and deliberations of citizens that enables them to project their agency and, eventually, project social power. Structuration by means of pyramidal deliberative networks is thus the mechanism that drives pyramidal democracy.

d. In terms of policy-making, we suggest that pyramidal networks may help to better enable citizens to collect and evaluate different kinds of evidence. This is the essence of the process of democratic experimentation that we argued is key to solving the interrelated crises. Effective policy-making, in this sense, would help to instantiate pyramidal democracy more broadly.

5.2. We deal here with the problem of participation: what incentivises citizens to participate in pyramidal networks at the levels and intensity required for them to be effective?

a. We note a division between activism and slacktivism; i.e. between high-level and low-level participation. Even low-level participation, however, can engender positive effects.

b. We argue that pyramidal networks distribute the intensity of participation both vertically and horizontally. This means that not all citizens need to participate intensively at all times in order for pyramidal networks to be effective.
c. Both low-level and high-level participation engender feedback loops that are likely to lead to increased participation over time.
d. Making pyramidal democracy effective, however, requires educating and designing for participation. The linking-together of universities and schools within one or more networks may help to generate the requisite threshold of participation for kicking off feedback loops.
e. We briefly explore case studies or precedents for political participation: e-government, e-protest, and mass online political initiatives like avaaz.org. By solving key problems for enabling participation, pyramidal networks may harness this pre-existing predilection for political participation, in turn helping to kickstart more broad-based participation in pyramidal networks.

5.3. In this section, we deal with the problem of tyranny and co-optation.
a. Political tyrannies of the majority – where mass public opinion leads to the infringement of minority rights – is one of the most pressing dangers when it comes to pyramidal democracy. We suggest various factors that work against the possibility of such tyrannies remaining stable in the medium and long-term.
b. Because pyramidal networks are dependent on ICT, they may facilitate state surveillance and oppression. Although the problem remains significant, there are various factors that may mitigate the problem: technology, public opinion, and the gradual dismantling of the surveillance state.
c. The possibility of both internal and external co-optation exists. While individual groups may become co-opted by individual delegates, however, it seems unlikely that an entire network could operate against the wishes of the citizens who comprise the base. External co-optation, although certainly, possible is unlikely given the potential size of networks. The potential costs of external co-optation by vested interests are thus likely to outweigh the potential costs of cooperation.

5.4. This chapter concludes the main argument in the thesis: that mass citizen participation might be reconciled with deliberative democracy by means of a bespoke application.

1.3.3 Convergence Towards Resolving the Problem

In Chapter 6, we outline how pyramidal democracy – by means of transnational pyramidal networks – might facilitate new forms of global representation and thus the instantiation of a citizen-based schema of global governance. Such a transition is necessary to enable citizens to make social demands for the implementation or modification of global-level policy. This is, in turn, important for the resolution of the interrelated crises and a transition towards post-scarcity.

6.1. Transnational pyramidal networks might enable four new forms of global representation:
   a. SMU configurations: broad-based alliances between social movements, trade unions and community organisations
   b. Global political parties: with unitary manifestos but who contest local and national elections in more than one country
   c. Interparliamentary institutions: which might link local citizens to global-level decision-making
   d. A People's Assembly: which would be a twin to the General Assembly, but formed independently of nation-states

6.2. These new forms of representation – the People's Assembly (PA) in particular – may enable the reform of the United Nations and the IFIs (international financial institutions) like the World Bank, WTO and IMF.
   a. A PA, formed independently and without the authorization or input of nation-states, would immediately enable citizens an unfiltered voice in global-decision-making
   b. If a PA were to become large enough to be legitimate, it might be integrated into the formal structure of the UN in due course. If not, it might quickly come to constitute a more democratic and legitimate source of authority than UN structures.
   c. A PA may drive the reform of the General Assembly, which, in turn, may drive the reform of the United Nations Security Council.
   d. As part of reform, or as an alternative to it, a PA might make a social demand for the implementation of a Tobin tax by which to independently finance the United Nations. Independent financing might rapidly drive the reform of the UN and, in turn, the IFIs

6.3. Broad configurations might also enable citizens to restrict the use of force on the part of states, by:
   a. Consolidating anti-war sentiment and projecting social demands for the prevention of war
   b. Democratising war powers by requiring governments to seek authorisation for war from their citizens

c. Limiting the international trade in arms
d. Facilitating the unionisation of military personnel
e. Enabling the funding of a UN standing army or rapid response force
f. Empowering citizens to authorize military intervention on the basis of Responsibility to Protect and, more importantly, facilitating post-conflict reconstruction that was adequately funded and suitably inclusive

6.4. These three components thus comprise a citizen-based schema of global governance, which may be sufficient for transitioning towards distributive justice, environmental sustainability, and global peace.

In Chapter 7, we come full circle and outline how pyramidal democracy might enable the democratisation of the global economy and a transition towards post-scarcity. A key idea here is the provision of some threshold of social equality that would give meaning to the political equality engendered by pyramidal democracy.

7.1. We define social equality as broadly equal access to the social and material means for self-actualization.
   a. This implies a social minimum in the form of a basic income sufficient for living a minimally-decent life.
   b. The provision of a social minimum can be justified on the grounds of utilitarianism, libertarianism, left-libertarianism, egalitarian liberalism, and democratic theories of justice. Of these, the democratic theory of justice is most compelling: that political equality, to mean anything, requires some threshold of economic equality.
   c. In terms of social or distributive justice we argue that the components of a democratized economy are examples of procedural, non-comparative justice: all citizens get an equal share of fee-and-dividend taxes and none of the components requires an authority to distribute resources on the basis of means-testing.
   d. The implementation of the components can be justified on the basis of Rawls's difference principle, applied at both the national and global level. Be this as it may, we find pure egalitarianism to be a more compelling justification: all human beings should be entitled to a share of the natural abundance of the planet and the cultural and technological inheritance bequeathed by previous generations.

7.2. We suggest that the four *base* components and the two *sphere* components of a democratised economy – participatory budgeting, fee-and-dividend taxes, a basic income, monetary and investment reform, workplace democracy, and the sharing economy – can all

help to meet the three requirements of a post-scarcity economic order (as mentioned in 1.3.a above).

7.3. The four base components comprise the sets of policies necessary for the provision of a social minimum:

   a. Participatory budgeting accelerates the provision of public goods and, in conjunction with fee-and-dividend taxes, helps drive localised employment and investment.
   b. Fee-and-dividend taxes provide resources for participatory budgeting, drive participation in pyramidal democracies, and contribute towards a basic income.
   c. A basic income is provided partially by fee-and-dividend taxes and by the "commoning" of natural resources and state assets, and partially by monetary reform.
   d. Monetary reform – at the local, national, and global level – eliminates the artificial scarcity of money and unlocks the productive potential of advanced technology, leading to virtuous cycles of investment, employment, consumption, and production.
   e. These four base components thus enable the provision of a social minimum.

7.4. The two sphere components comprise the sets of policies that help drive the development of a maximal stock of humanmade and natural capital, and thus maximise the purchasing power of the basic income and engender a transition towards more creative, social, and self-directed work.

   a. Workplace democracy entails the implementation of pyramidal networks at the level of the firm. This entails three concomitant possibilities:
      i. Greater self-management and codetermination within the firm.
      ii. The 'mapping' of citizens within the workplace, enabling the formation of trade and labour organisations at the local, national, and global level. Such organisations might then enable social bargains to be struck between labour, capital, and the state, such that a maximal stock of humanmade capital is developed.
      iii. The enmeshment of the largest transnational corporations into wheel configurations that included all stakeholders: management, shareholders, customers, employees, and the communities in which the firms operated. This might be a recipe for subordinating economic power to social power and thus harnessing the resources and institutional capacity of corporations in the development of a maximal stock of humanmade and natural capital.
   b. The sharing economy enables citizens to engage in peer-to-peer production and consumption. Social economies – by reducing energy and material throughput – have

the potential to provide broad-based access to goods and services, but with minimal requirements for 'paid' labour.

i. Sharing economy initiatives operate in every sector of the economy: agriculture, finance, transport, built-infrastructure, and the production and exchange of durable goods. Pyramidal networks, in combination with a basic income, might integrate and expand these initiatives so as to rapidly ensure the provision of basic goods and services for all global citizens.

ii. Pyramidal democracy might enable "platform governance" where the digital platforms that coordinate sharing initiatives are democratized by the producers and consumers of value, becoming less orientated towards the market and more orientated towards the community.

iii. Pyramidal democracy might then enable "platform cooperativism" where the producers and consumers of value come to own and control the platform directly. The socialisation of platforms sets an important precedent for the socialisation of non-platform-based firms in the real economy.

c. The workplace democracy component is thus important for transitioning towards full employment in the medium term and thereby constructing the infrastructure – based on automation and smart technologies – necessary for a post-scarcity economic order. The sharing economy, on the other hand, provides an alternative to the market sphere, where citizens engage in peer-to-peer production, consumption, and investment, significantly reducing the throughput of energy and material in the global economy.

7.5. The six components of a democratised economy thus represent the possibility of resolving the interrelated crises by means of transitioning to a post-scarcity economic order premised on the universal provision of a social minimum.

In Chapter 8, we provide a brief overview of how we might expect a transition towards pyramidal democracy and a post-scarcity economic order to occur. We outline three kinds of transition: by feedback, by paradigm, and by strategy.

8.1. We make some general assumptions about our bespoke application: that it has been suitably developed and tested, probably within a network of universities, and the basic assumptions about the characteristics of pyramidal networks – reflexive legitimacy, obtrusiveness, uniformity, modularity – have been proven accurate to some extent. We assume also that our bespoke application has been successfully adopted in a few test environments outside of the university, specifically at the level of the community and the firm. Given this assumption

of basic feasibility, we can suggest why we might expect the adoption of pyramidal democracy to accelerate over time.

8.2. Transition by feedback: We employ a systems-thinking perspective that understands all socio-economic institutions or organisations as systems. Systems have various leverage points that are more or less effective in changing the operation and function of the system. We suggest that pyramidal networks revolutionise a mid-level leverage point – information flows – and thus might engender iterative feedback loops that help to change the most effective leverage points in systems: paradigms and system goals. We thus suggest that pyramidal networks, by revolutionising information flows, are likely to be broadly adopted over time.

8.3. Transition by paradigm: The fastest way to change a system is to change the paradigm from which the system goals derive. A citizen-based schema of global governance, a democratised economy, and a post-scarcity economic order are all constitutive of a paradigm – or 'positive' ideology – that might rapidly drive the adoption of pyramidal democracy. We suggest a 'projects' definition of climate change that may constitute such a paradigm.

8.4. Transition by strategy: Because our bespoke application has the potential to 'go viral' it might be possible to create transnational pyramidal networks comprising tens of millions of citizens very rapidly, especially under conditions where citizens successfully orchestrated a viral marketing campaign.

8.5. Given these possibilities, we suggest that pyramidal democracy would be broadly adopted over time – if our basic assumptions about its effectiveness are correct.

In our conclusion, we review the extent to which we have met our two primary objectives: outlining how deliberative democracy and mass engagement are to be reconciled and suggesting how such a reconciliation might facilitate the democratisation of the global economy. In doing so, we return to our methodologies and suggest how the arguments of this dissertation relate to practical reason, pragmatism, and critical theory. Finally, we conclude by means of an extended analogy that helps to illuminate the link between post-scarcity and pyramidal democracy.

2. Crisis and Opportunity

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2.1 Introduction

Our primary objective in this dissertation as a whole is to suggest how ICT (information communication technology) might reconcile deliberative democracy with mass engagement. In this chapter, we lay a foundation for that argument, by suggesting why such a reconciliation is necessary and desirable. In short, the world faces a series of interrelated crises in the 21st century: environmental, economic, political, and energetic. The complexity of these crises makes them 'wicked' and thus unresolvable by linear top-down processes of problem solving. Because the authority or power to solve these problems, moreover, is distributed between all individuals, communities, and nation-states across the world, a collaborative strategy – involving all global stakeholders – would be the best means of resolving the crises.

A collaborative strategy implies the requirement for global collaborative networks that would enable citizens to 'crowdsource' relevant information, develop shared understandings of the problems, and collaboratively frame, deploy, test, and modify solutions over time. The formation of global collaborative networks with the power to implement solutions, however, implies the need for generating unprecedented levels of political will. Hence, the need for a means of reconciling deliberative democracy with mass engagement in order to generate the political will to solve the interrelated crises of the 21st century.

If it is feasible and desirable to form global collaborative networks in order to resolve the interrelated crises, however, then it might also be feasible and desirable to utilise such networks in order to replace

existing socio-economic systems with more equitable and emancipatory systems. Hence, we introduce the possibility of a post-scarcity economic system, by which we mean a global economy premised, at a minimum, on the universal provision of basic human needs, and, at a maximum, on the abundance of humanmade capital such that the marginal cost of all goods and services for all citizens was significantly reduced. Building the infrastructure for a post-scarcity economy would entail a massive surge of employment – a third industrial revolution – but, after it was constructed the foundations for post-scarcity would be in place. In this sense, the third industrial revolution entails embracing new technologies – like machine learning, artificial intelligence, and blockchain technologies – in order to automate as much toil and labour as possible, thereby significantly increasing efficiency, reducing the throughput of material and energy, and freeing humans for more creative and social work.

In this chapter, then, we lay out the *circumstances* in which global civilisation finds itself: midway between the possibility of systemic crisis and collapse, on the one hand, and the possibility of systematic progress and development, on the other. Hence, the importance of reconciling deliberative democracy with mass engagement – provided that doing so enables the latter possibility, rather than the former. We speak to these possibilities further over the course of this dissertation.

2.2 Crisis

In this section we provide an outline of three interrelated crises: environmental, economic, and political. Our objective is not to provide an exhaustive analysis of the crises, but rather to highlight their most important aspects and, in doing so, indicate their inherent complexity. To this end, we suggest that the crises – taken together – constitute a "wicked" problem. Wicked problems (Rittel and Webber 1973) are problems with no definitive solution but require, for their resolution, an iterative process of critical argument, deliberation, problem-framing and solution-testing. As such, wicked problems are most successfully solved by engaging all stakeholders in an iterative and participatory process.

Our contention – and one that we develop further in this and later chapters – is that the predominant model of democracy today – the equilibrium or Schumpeterian model – is inadequate for solving the interrelated crises of the 21st century because it is premised on a limited conception of participation. If our assumption is correct that the aforementioned crises are best conceptualised as wicked problems, and thus best resolved by means of stakeholder engagement, then it follows that a more participatory model of democracy is required. The objective of this section, then, is to foreshadow the *raison d'être* for developing a new model of participatory democracy.

2.2.1 Three Interrelated Crises

The problem of global environmental change is well-documented (Carson 1962; Meadows et al 1972; Brundtland 1992; MEA 2005) and is, of course, exemplified by the problem of climate change. Global warming[1] is likely to engender multiple concomitant crises as time goes by: ecological degradation, severe weather events, species extinction, and, as a result, loss of livelihood, mass migration, and political and economic instability. We can thus immediately see how the environmental crisis is interlinked with the possibility of economic and political crisis.

Global warming is assumed to be caused primarily by the release of carbon dioxide via the burning of fossil fuels (IPCC 2007, 2014), as well as by the release of other greenhouse gases related to land-use change and modern agricultural techniques (Houghton 2009; IPCC 2014). The best means of mitigating global warming is a rapid reduction in the burning of fossil energy (coal in particular) by means of a transition to renewable energy systems and/or nuclear power. If we are to stay within the carbon budget[2] and keep warming below 2 degrees Celsius, then the transition away from fossil energy must be completed within the next three decades (Berners-Lee and Clark 2013; Peters et al 2013). Fossil fuel reserves, however, represent trillions of dollars on the books of the largest corporations and energy-exporting countries. Hence, the assertion of Berners-Lee and Clark (2013: 87) that the value of oil, coal and gas reserves is the "single biggest challenge to solving climate change".

At the root of the environmental problem, however, is the disregard of ultimate scale in the material and energy throughput of the human economy (Boulding 1966; Daly 1992). The result is a situation where humanity is in "overshoot" (Moriarty and Honnery 2012) and in danger of exceeding certain planetary boundaries (Rockström et al 2012). Under these circumstances, any reconciliation of capitalism with long-term sustainability – i.e. "green" capitalism – is questionable (Anderson and M'Gonigle 2012; Redclift 2012). Global environmental change undermines capitalism – or is likely to in the long-term – and thus a fundamental contradiction arises, as Einstein tells us, in attempting to solve a problem with the same thinking that created the original problem. Any long-term solution to climate change implies a limit to ultimate scale, and thus an end to the assumption of indefinite capitalist growth.

[1] Anthropocentric global warming is disputed by Alexander (2009) and Booker (2009), for example, on the basis that the data is manipulated, the models fail to predict historical changes, and that the IPCC has been corrupted by political fundamentalists. These observations, however, are not supported in the mainstream literature. See, for example, Washington and Cook (2009) on climate change denialism.

[2] Randers (2012: 118) calculates the available carbon budget at 600 billion tonnes, which will be used up at current rates by 2030. Because emissions cannot decline to zero immediately after 2030, emissions must peak midway and decline rapidly thereafter. Hence Li's (2008) observation that CO_2 emissions would have to peak by 2015 and fall by up to 85% by 2050 in order to limit global warming to between 2 and 2.4 °C.

The fact that this implication "changes everything" (Klein 2015) does not, in fact, immediately change anything. If politicians must promise jobs to stay elected, and jobs are equated with growth, and growth with capitalist expansion, then it is difficult to see how politicians could meaningfully promote reductions in economic growth; at least not without a grand vision or narrative of a new society. Projections of future emissions – even best-case scenario projections – remain inconsistent with stabilising global temperature below a two-degree rise, even if all current government commitments were adhered to (Sterman et al 2015; IEA 2016; Rogelj et al 2016). It seems, then, that business-as-usual economics is incompatible with solving the environmental crisis, and that projections of future emissions – even under best case scenario circumstances – provide evidence for this claim.

Capitalism, however, itself seems to be in crisis (Pelling et al 2012; Streek 2014; Mason 2015; Kocka 2016), further complicating an adequate response to the environmental crisis. The crisis of capitalism entails one or more of the following facets: 1) the financialization of the global economy, where income is increasingly transferred from the real sector of the economy to the financial sector; 2) substantial increases in private and sovereign debt, which contribute to inequality and depress effective aggregate demand; and 3) secular stagnation, where growth remains sluggish despite low or zero interest rates.

Each of these facets helps to reinforce the others. For example, a lack of aggregate effective demand limits investment in real productive capacity. This limits the provision of basic goods and services to many of the world's citizens and helps to stall development and reinforce inequality. Because citizens cannot afford to buy all the goods that could potentially be produced, capital struggles to find an attractive rate of return in the real economy. Idle cash thus "sloshes" unproductively around the global economy, driving the process of financialization, inflating asset prices, and undermining the stability and monetary policies of developing nations (Patomäki 2001; Ghosh 2010; Akyuz 2011). The result of this paradox is stagnant wages, unemployment, and low aggregate demand – so-called "secular stagnation" (Summers 2014, 2018; Krugman 2013) – all of which perpetuates both the environmental and economic crises.

Insufficient demand is further perpetuated by growing inequality. One percent of the population now owns more wealth than the rest of the world combined (Credit Suisse 2015; Kochhar 2015; Oxfam 2017), and, although global poverty has declined in recent decades, inequality of income – especially within countries – has risen (Anand and Segal 2015). Because capital consistently outperforms labour (Piketty 2016), inequality is increasingly a self-reinforcing process where the richest 10% capture more and more of the total global income. Again, this state of affairs limits aggregate effective demand, reduces productive investment, and limits employment.

At the heart of the crisis of capitalism, however, is arguably a "fetish" with the idea of growth (Stiglitz 2009). Even if the problems of financialization, debt, inequality, and stagnation can be fully or partially resolved, capitalism – in its most dominant form – remains inherently predicated on growth and expansion, which, all things being equal, are incompatible with resolving the environmental crisis (Anderson and M'Gonigle 2012; Redclift 2012). Thus, the crisis of capitalism is really about how it can be suitably reengineered for degrowth or 'postgrowth' (Kallis, Kerschner and Martinez-Alier 2012; Jackson 2009; Jackson 2019). Doing so means overcoming multiple political barriers to transition that result from the vested interests of different actor constellations (Strunz and Schindler 2018). Thus, capitalism is in crisis insofar as it remains incompatible with a solution to the environmental crisis – a claim which, we must admit remains highly contested.

The political will to reengineer the capitalist system, however, is unlikely to cohere under conditions where citizens are increasingly disenfranchised from the political process, either through exclusion or apathy. There is a trend, for example, of decreasing voter turnout across most of the world's democracies (Niemi et al 2001; World Bank 2017) as well as decreasing levels of trust in government and elites (Pew Research 2015a; WPP 2016; Economist 2016). Similarly, there is a phenomenon of "democratic deconsolidation" in liberal democracies, exemplified by the rise of far-right nationalist and populist parties (Foa and Mounk 2017a, 2017b). We thus increasingly find ourselves in a state of "post-democracy" (Crouch 2004, 2016) where liberal democratic mechanisms of governance remain well-established, but their efficacy to reflect the democratic will of citizens is quickly diminishing.

While some scholars (Norris 2017; Voeten 2017; Alexander and Welzel 2017) challenge the idea of democratic deconsolidation – arguing that Foa and Mounk are cherry-picking their data – none of these scholars denies that democracy is troubled. Brunkert, Kruse and Welzel (2018), for example, note a recent reversal in the century-long trend of democratisation. So, although one might take issue with the specifics of Foa and Mounk's argument, their main conclusion seems generally to hold: citizens are less confident about democracy today than they were in the past. The rise of far-right extremism in the United States, Europe, Brazil and the Philippines potentially speaks, then, to a process of democratic deconsolidation.

The extent to which such deconsolidation characterises a political crisis, we might argue, is proportional to the degree of urgency with which the global political system must resolve the interrelated environmental and economic crises. If the political system is unable to generate an adequate response to these crises – and global publics identify climate change and economic instability as two of the most prominent global threats (Pew Research 2015b) – then it follows that the political system must, in some sense, be in crisis.

One aspect of such a crisis is the disconnect between the preferences of the public and the formation of public policy. Gilens and Page (2014: 575), in a widely-cited study, note that when the preferences of elites and organised interest groups are controlled for, the preference of the average American voter appears to have only a "miniscule, near-zero, statistically non-significant impact upon public policy"[3]. Concentrated wealth thus seems to lead to concentrated political power, a danger noted early on by Dahl (1970, 1977) and supported by the analysis of, for example, Solt (2008). If elites dominate democratic systems in other countries to a similar degree, and wealth is highly concentrated among this elite, and the value of that wealth is dependent on business-as-usual economics, then we can assume that politics-as-usual is unlikely to result in an adequate response to environmental and economic crises.

The disconnect between public preferences and public policy engenders, in part, a "fourth age" of media politics, characterised by the "growing chaos of multiple public spheres" in which the "spin of conventional parties and politicians" interacts chaotically with the new forms of organisation and communication enabled by "technology platforms and socially mediated information production and distribution" (Bennett, Segerburg and Knüpfer 2018: 1673). In the case of twitter, this seems to have resulted in a growing trend towards a "politics of debasement" (Ott 2017).

Moreover, Bennett et al (2018) argue that the fourth media age tends to privilege those on the radical right, who engage primarily on the basis of 'vertical' hierarchical party structures. In other words, twitter, the blogosphere, and 'fake news' tend to consolidate both the base and the core political message of radical right parties and politicians. On the other hand, the radical left increasingly expresses a desire for more deliberative and participatory methods of engagement; i.e. for 'horizontal' intraparty democracy. Because technology better enables 'vertical' rather than 'horizontal' structures of engagement, Bennet et al argue, the radical right is becoming increasingly more capable of winning elections.

In this sense, then, the political crisis is exemplified by a general disconnect between elites and the preferences of the broader public. The discontent generated by this disconnect, however, is fuelling the rise of the radical right far more effectively than it is the rise of the radical left. Under current circumstance, then, we would need either "transformational leadership" or a popular coalition large enough to force elected officials to change the political and economic system to "fit biological reality" (Orr 2009: 33); i.e. resolve the environmental and economic crises. We are instead witnessing the

[3] Similarly, Lessig (2011, 2013) argues that the power of money in election campaigns has resulted in officials being responsive to just 0.02% of the American population: those who donate the legal maximum in campaign contributions.

entrenchment of deep divisions within the global electorate, as seen in the rise of populism, nationalism, protectionism, and insular thinking.

If these crises were not enough, they are all undergirded by a potential problem in supply of the most valuable and least-replaceable form of fossil energy: oil[4]. Although the world may seem awash right now in relatively cheap oil, a great deal of evidence suggests that this is unlikely to be the case in the medium and long-term. This claim rests on three sub claims. First, conventional oil production has peaked or will peak in the near future[5]. Second, unconventional oil[6] cannot delay a global production peak for very long, despite the "golden age" of shale gas and tight oil development (IEA 2012; Pentland 2013)[7]. Third, therefore, a combined peak in production in the medium term is likely (Castro et al 2009; Miller and Sorrell 2014; Höök 2014)[8]. Oil supply problems are thus likely to occur before 2030 (Mohr and Evans 2010; Guseo 2011). If a supply problem is to be avoided, massive mitigation and transition projects – like advanced fuel economy vehicles, vast renewable energy systems, and large-scale biofuel – need to be implemented immediately (Mason 2007).

Peaking global production implies that growth and development must occur simultaneously with decreasing supplies of oil, which is unlikely (Hirsch 2005, 2007; Murphy and Hall 2012; Behmiri and Manso 2012). Supply shortages are likely to affect the transport sector first and, through global supply chains, impact on all other sectors (Kerschner and Hubacek 2009; Lutz et al 2012). A permanent depression is a possible result (Gates et al 2005), as is both war and increased resource nationalism (Klare 2012).

The potential peaking of global oil production is of significant concern for primarily two reasons. First, because global value chains rely almost exclusively on oil – and will continue to do so for decades to come – any permanent peak in production will engender significant political unrest and economic turbulence. This might exacerbate pre-existing political and economic crises to such an extent that

[4] We are talking here of 'peak oil theory'. The most important thing to remember is that peak oil is not about oil 'running out'. Rather it is the contention that at a certain point in time – because of the geological characteristics of oil fields – global production will inevitably reach a historical maximum, at some point in time, and then decline year-on-year from thereon out.

[5] See Meng and Bentley 2008; Bridge 2010; Sorrel et al 2010a, 2010b; Murray and King 2012; Hallock et al 2014. The essence of the problem is that *half of global supply* comes from just 100 supergiant fields (Miller and Sorrell 2014: 6) and half these fields are in decline (Höök et al 2009). This means that 50% of production comes from a fraction of 1% of all fields, since there are more than 70 000 oil fields in production. Sorrel et al (2010a: 5294) conclude that "a peak of conventional oil production before 2030 appears likely and there is a significant risk of a peak before 2020".

[6] We define unconventional oil as deep offshore, tight oil produced from fracking, kerogen oil, and tar sands.

[7] This is due to limits on how quickly the resources can be developed (Söderberg et al 2007; CAPP 2014), how quickly their yields decline (Sorrel et al 2010a; Hughes 2013; Van Der Hoeven 2013), and the low energy return of non-conventional resources (Dale et al 2011).

[8] Forecasts that do not predict a combined peak tend to make unrealistic assumptions (Söderberg et al 2007; Aleklett et al 2010; Miller 2011).

social cohesion begins to break down, making an adequate and timeous response to the environmental crisis increasingly unlikely. Second, responding to climate change implies the rapid deployment of renewable energy in conjunction with the rapid reduction of global poverty. Building new infrastructure and replacing existing infrastructure at the required pace and scale, then, will necessarily require tremendous quantities of energy, primarily in the form of oil. Peaking production might then prevent an adequate response to climate change by limiting the capacity of the global economy to build and deploy the necessary clean energy infrastructure. Thus, peaking oil production – if not suitably accounted for – has the potential to exacerbate the interrelated crises of the 21st century.

These three interrelated crises – four crises, if we include energy – thus speak to a set of deep structural problems in the global political economy. In many ways each crisis is linked to the idea that indefinite growth and accumulation is feasible, desirable, and inherently wealth-distributing. At the root of the problem is thus an economic paradigm – a set of methods and perspectives – that is, arguably, inherently incapable of solving the problems that it has engendered. As Kuhn (1962: 94), notes paradigms are always circular: we do not question the assumptions they contain, because the way that we formulate both questions and answers about the world derives from the paradigm itself. In this sense, a paradigm can "insulate the community from socially important ideas…because they cannot be stated in terms of the conceptual and instrumental tools the paradigm supplies" (37). Our key claim, and one that we develop over the course of this dissertation, is that the current economic paradigm is inappropriate for the resolution of the interrelated crises of the 21st century.

2.2.2 Complexity and Participation

The preceding analysis should hopefully have demonstrated the inherent complexity of responding adequately to the interrelated crises of the 21st century. In order to identify the nature of this complexity, we can draw attention to the idea of "wicked" problems. A wicked problem is a term coined by Rittel and Webber (1973) to describe problems with no definitive solution and thus require – for their resolution – a process of iterative deliberation, analysis and testing amongst all stakeholders. If our contention, developed later in this chapter, that the dominant model of democracy – equilibrium democracy – deemphasises the value of participation, and increased participation is required for the resolution of the complex problems, then it follows that the equilibrium model may be insufficient for solving the interrelated problems of the 21st century. We proceed by outlining how increased participation relates to resolving complex problems.

As Rittel and Webber (1973) note, science has evolved to deal with "tame" problems[9] where "an exhaustive formulation can be stated" that contains "all the information the problem-solver needs for understanding and solving the problem" (161). The same approach cannot be used to solve wicked problems because the "information needed to *understand* the problem depends upon one's ideas for *solving* it" (authors' italics). In other words, in order to define the problem and its solution, one must also develop an "exhaustive inventory" of all solutions to the concomitant problems that feed into the characterisation of the initial problem (ibid).

Solving climate change, for example, which has been identified as a wicked or "super wicked"[10] problem (Lazarus 2008; Levin et al 2012; World Bank 2014; Stang and Ujvari 2015), ultimately entails solving the interrelated problems of economic inequality, insufficient effective demand, peaking oil production, the book value of existing fossil reserves, elite capture of politicians, and declining citizen trust and engagement with the political process. In this sense, to adequately formulate a solution to climate change, one must ideally formulate an adequate solution to each of these compounding or contributing problems.

Climate change is thus a wicked problem because it has the following defining characteristics (Rittel and Webber 1973): 1) it has no stopping rule (no discrete endpoint exists that tells us we have solved the problem); 2) solutions are likely to generate new problems; 3) solutions are not true-false but rather exist on a continuum between good and bad; 4) solutions cannot be immediately tested (because they produce waves of repercussions over extended periods of time); and 5) the problem itself is often a symptom of other problems. Hence, Rittel and Webber (162) argue that wicked problems are best tackled iteratively by means of:

> *"an argumentative process in the course of which an image of the problem and of the solution emerges gradually among the participants, as a product of incessant judgment, subjected to critical argument"*

What they suggest, then, is that solving wicked problems requires an iterative process of stakeholder engagement. Our claim here is that, if the three crises – environmental, economic, political – are

[9] Consider also the term "post-normal science", a phrase coined by Funtowicz and Ravetz (1993, 1994, 2003) which speaks to the need for a more participatory, multi-stakeholder approach to dealing with complex problems like environmental sustainability. Funtowicz and Ravetz claim that science can no longer deliver certainty when it comes to such complex problems, implying the need for an iterative and communicative approach to developing, testing and implementing solutions. Post-normal science can be contrasted with "normal science" (Kuhn 1962: 10), research that is "firmly based upon one or more past scientific achievements… [that supplies] the foundation for its further practice".

[10] By super wicked, Levin et al (2012) mean that the problem has four characteristics: 1) time is running out; 2) those who cause the problem are also seeking to solve the problem; 3) the central authority necessary to solve the problem is weak or non-existent; and 4) policy responses irrationally discount the future.

inherently complex and interrelated – i.e. they are wicked problems – then it follows that an iterative process of critical argument, deliberation, problem-framing and solution-testing, amongst all stakeholders, would be required if adequate solutions were to be found. Because the power to resolve these problems is dispersed across all individuals, communities and nation-states, collaborative strategies – rather than authoritative or competitive strategies – are likely to be most effective (Roberts 2000).

Collaborative strategies involve "getting the whole system in the room" in such a way that stakeholders can usefully learn from one another (16). Learning is accelerated, moreover, when it derives from self-organisation; i.e. when learning is a "complex adaptive system that co-evolves as stakeholders meet, interact, and inform one another's actions". Ultimately, collaborative solutions require an initial act of faith, a hope that there is a "better way of doing things". Collaborative strategies become particularly effective, moreover, when they are realised by means of collaborative networks.

According to Weber and Khademian (2008: 344), collaborative networks of actors are key to solving wicked problems because such problems place "critical emphasis" on the tasks of knowledge transmission and integration. These are tasks that are grounded in social and political relationships and involve taking the knowledge of all network actors, harnessing the "collaborative network dynamic" so that new information is created, and then putting all that information together such that it can further inform the problem-solving process. This process is generally driven by a "collaborative capacity builder" – someone who can coordinate the process of problem-framing and solution-development. Collaborative networks can thus instantiate two of the most recommended approaches to solving wicked problems: generating better knowledge and better consultation (Head 2008).

As Head and Alford (2013: 725-6) note, moreover, when collaborative networks function effectively they can solve wicked problems in three ways. First, they increase the likelihood that the problem and its underlying causes will be better understood. Second, they increase the likelihood that provisional solutions to the problem can be found and agreed upon, not only because a wider network offers more insights but also because greater cooperation improves the chances that "diverse parties…may reach an understanding about what to do". Third, collaborative networks facilitate the implementation of solutions because participants have generally agreed on the immediate steps to be taken and because they can coordinate and make adjustments as and when circumstances change.

Thus, if we are to solve the interrelated crises of the 21st century, then it follows that global collaborative networks may be required. This would entail: 1) connecting all global stakeholders together within one or more networks; 2) identifying "collaborative capacity builders" who can drive

and manage the collaborative process; 3) facilitating a process of knowledge transmission and integration; 4) so that the problem can be understood; 5) solutions can be found and agreed upon; and 6) solutions can be implemented, tested, and modified. We might see, moreover, how advanced ICT (information communication technology) would be fundamental to such a process.

In this sense, Michelucci and Dickinson (2016: 32) speak of the "problem-solving ecosystem" of the future that combines the "cognitive processing" of human contributors with machine-based computing in order to build "faithful models of the complex, interdependent systems that underlie the world's most challenging problems". This might involve, moreover, instantiating human-machine feedback loops that allows non-experts to provide domain-specific expert knowledge (ibid). In other words, if it were possible to connect all global citizens into a single network, then we might be able to "crowdsource" all the information we need in order to develop coherent solutions to wicked problems. We would, moreover, be able to integrate that information into dynamic models where citizens could find and test solutions. Finally, effective design could enable feedback loops between citizens and experts, such that an iterative process of information-pooling, critical argument, problem-framing and solution-testing – amongst all stakeholders – would result.

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In conclusion, then, the world faces several complex and interrelated crises in the 21st century: environmental, economic, political and energetic. These problems are wicked or super-wicked in the sense that time is running out, those who are causing the problems are those trying to solve them, central authority is weak or non-existent, and solutions are likely to engender new problems as time goes by. The best strategy for resolving wicked problems is a collaborative approach whereby all the stakeholders to the problem provide relevant information and then engage in critical argument in order to understand the problem and suggest potential solutions. A collaborative approach thus implies the necessity for collaborative global networks that would connect all global citizens together in such as a way as to resolve the interrelated crises.

2.3 Opportunity

There is an often cited, but inaccurate[11], refrain in motivational speaking: that the Chinese word for 'crisis' is composed of two distinct characters, 'danger' and 'opportunity'. In this sense, then, the

[11] As Mair (2009) notes, this perception is incorrect and a product of "wishful thinking" on the part of Western individuals. While one character does mean 'crisis' the other translates more to 'insipient movement'. For our purposes, insipient moment is just as appropriate as opportunity.

danger of civilizational decline or collapse – suggested by the breadth and complexity of the aforementioned crises – is matched by the opportunity for reengineering the global built environment and reimagining social institutions and processes. If it is feasible and desirable to form global collaborative networks in the interests of resolving the crises, then it follows that it would be desirable to utilise those networks in order to engineer a superior global socio-economic system. Thus, we suggest in this section that an optimum solution to the interrelated crises of the 21st century might entail a transition towards a post-scarcity economic system.

By post-scarcity we do not mean an economic system where no limitations exist on the supply of material goods. We mean, rather, an economic system premised on the fact that there is nothing that fundamentally limits the economic system from providing *basic security* of all human beings. In other words, there is no fundamental limitation which prevents each global citizen[12] from receiving, say, a universal basic income sufficient – at the minimum – for food, clothes, shelter, education, transport and healthcare[13].

It is not our objective here, however, to present an exhaustive argument for post-scarcity, nor a roadmap by which to realise a post-scarcity economic system[14]. Instead, we wish to lay the foundation for an envisioned endpoint for the model of democracy that we develop over the course of this dissertation as a whole. A transition towards a post-scarcity economic system – as a function of solving the interrelated crises of the 21st century – is ultimately what we want a more participatory model of democracy to achieve. We return to this envisioned endpoint in later chapters. For the moment, we proceed as follows:

First, we briefly outline the basis of post-scarcity thought, noting the important assertion that the logic of capitalism necessitates the creation of false needs and scarcity-generating institutions which have prevented, to some extent, the realisation of a post-scarcity economic system. Second, we outline the problems and possibilities of advanced automation. The key insight here is that rapid technological advances are currently displacing paid employment, and thus compounding the economic crisis. Embracing and accelerating automation – and ensuring that the benefits accrue equally to all citizens

[12] Over the course of this dissertation we use the term "global citizen" to mean simply a human being who, under the auspices of our ICT-facilitated model of participatory democracy, could or should enjoy some measure of political and social equality along with all other global citizens. We understand that global citizenship is a complex and contested concept (see, for example, Parekh 2003, Davies 2006, Tully 2014), but it is not our objective to contribute directly to this debate. We use the term, therefore, somewhat agnostically.
[13] Taking food as an example, there is, in principle, "sufficient global aggregate food consumption for nearly everyone to be well-fed" (Alexandratos and Bruinsma 2012: 1). We would contend that the same applies in terms of all basic needs.
[14] In Chapter 8 we outline the various components of a democratised global economy that would go some way towards realising a post-scarcity economy.

– is thus an important means of transitioning towards post-scarcity. Third, we suggest how a new computing technology – blockchains – could accelerate the process of automation in a variety of important ways.

The existence of the technological or material preconditions for post-scarcity, however, does not mean that a post-scarcity economic order is an inevitable, or even a likely, outcome of resolving the interrelated crises of the 21st century. A dystopian future is perhaps just as likely, especially if automation results in the ever-increasing concentration of wealth into the hands of fewer and fewer elites. The prerequisites for transitioning towards post-scarcity, therefore, are more political than they are technological. Hence, the function of a more participatory model of democracy is not only to help resolve the interrelated crises of the 21st century, but also to facilitate a transition to a post-scarcity economic system by doing so.

2.3.1 Post-Scarcity

At the foundation of post-scarcity thought is the contention that recent technological advance, over the last two centuries or so, has eliminated the *inevitability* of scarcity. Technological advance, in other words, *should*, at a bare minimum, make it possible for all basic human needs to be met. Taken to its logical conclusion, moreover, technological advance *should* make it feasible for all humans to live in relative abundance. In this section we outline four reasons why advanced technology under a capitalist economic system has, so far, not resulted in post scarcity: scarcity-generating institutions, false needs, limits on real-world productivity, and the drawdown of natural capital. Thus, we suggest three components that would be required for a post-scarcity economic order: universal provision for basic needs, maximisation of humanmade capital, and maximisation of the sustainable flows of energy and material from natural capital. We begin by examining why technological advance has so far failed to engender post-scarcity.

For Marx, of course, it was the inherent logic of capitalism and the alienation of workers that prevented a transition to a post-scarcity economic system. As Elliott (1988: 247) notes, the 'ends' of Marxist socialism – for Marx – were the "supersession of alienation", the emancipation of humankind, and the creation of opportunities for the "full development of man's productive and human potentialities". Thus, according to Elliott (1988: 248), Marx's vision of the socialist economy possessed some combination of the following features: 1) super affluence; 2) the distribution of some goods as if they were free; 3) a greater quantity of collective goods; 4) a large-scale expansion in education which would reduce the stigma attached to manual as compared with mental work; 5) major reductions in the length of the working week; and 6) an increase in leisure. So, although actually-

existing socialism never came close to realising this kind of economy, we can see in Marxism the kernel of a post-scarcity economy.

Actually-existing capitalism, however, has also failed to engender a post-scarcity world, for which there are at least four reasons. First, the logic of capitalism necessarily perpetuates certain "scarcity-generating institutions" like inequitable property arrangements, gender and racial hierarchies, and monetary systems monopolised by commercial banks (Hoeschele in Davy et al 2012: 106). These kinds of institutions "enforce" scarcity by confining "highly advanced technology within a commodity framework" (Bookchin 1986: 253). If scarcity-generating institutions were to be surpassed, the reasoning goes, then fewer limitations would exist on providing for all the basic needs of citizens.

Second, capitalism is premised on the assumption that humans are insatiable consumers with unlimited wants. As Prugh et al (2000: 5) note, the vast majority of economic activity in the world goes towards satisfying our wants and not our needs, concomitantly generating tremendous waste and limited increases in happiness (Easterlin et al 2010). Thus, as Marcuse (1964: 7-9) suggests, the problem of modern society is the creation of false needs – 'needs' for conspicuous consumption – that are "superimposed upon the individual by particular social interests [in order to perpetuate] his repression".

False needs, for Marcuse (1964: 14), result in "repressive satisfaction" whereby consumption brings with it certain "prescribed attitudes and habits, certain intellectual and emotional reactions" which bind the consumer "more or less pleasantly" to the producer. False needs, moreover, are those which perpetuate "toil, aggressiveness, misery and injustice". Thus, as long as false needs crowd out the universal provision of true needs – "nourishment, clothing, lodging" (7) – a post-scarcity society is not possible. In essence, then, the contention here is that post-scarcity is prevented by a form of false consciousness.

Third, the artificial scarcity of money prevents the maximisation of real productive capacity and thus maintains the artificial scarcity of humanmade capital. For John Maynard Keynes, the key economic problem is the "premature lessening of the desire to invest, based on the premature fall in effective demand" (Chernomas 1984: 1011). Premature, in other words, because those with income to spend do not spend enough, and those with a desire to increase their spending do not have enough income. Thus, there is perpetual under-investment in productivity-generating activity because there is not enough effective demand; people do not have enough money to purchase all the goods that could potentially be produced. Hence, money – or the lack of income – creates scarcity even though no real limitations – in labour or materials – exists that would fundamentally create that scarcity. This is the paradox of poverty amidst plenty (Keynes 1936).

If accumulation – the production of capital – could be maintained for a generation, Keynes contends, then the rate of interest would fall to zero, reflecting an absolute reduction in the scarcity value of capital. This would mean, in effect, building a "new house beside every existing house" and a "new factory beside every factory already established" (Gesell 1916: 8). Thus, if workers were allowed to remain at work, without "hindrance, disturbance or interruption", then capital would soon be "choked by an oversupply of capital" (9). The business cycle – where bust follows boom – prevents, however, the sustained full employment that would enable societies to create an abundance of humanmade capital.

Thus, Keynes (1936: 376) argued for the socialisation of investment[15], so that society might "hurdle the barrier to accumulation" established by financiers, speculators and vested interests (Chernomas 1984: 1015). To do so, the interest rate should be lowered, continuous investment incentivised, and the wealthy taxed – because they impede rather than facilitate wealth creation by not spending enough into the economy (Keynes 1936: 373). Such taxation, due to the resultant rise in consumption, Keynes noted, would likely prove "favourable to the growth of capital". Thus, one of the primary obstacles to realising post-scarcity, for Keynes at least, is the lack of a mechanism to ensure a continuous and incremental process of investment, employment, and consumption.

Fourth, the potential for post-scarcity is undermined by the destruction and drawdown of natural capital[16]. Nature is super-abundant, and this abundance – if properly managed – would necessarily form the foundation for a sustainable post-scarcity global civilisation (Verzola, in Davy et al 2012: 102). Under the neoliberal economic paradigm, however, the global ecosystem is understood as a *subset* of the global economy; nature is nothing but a "supplier of various indestructible building blocks" which are "substitutable and superabundant" (Daly and Farley 2004: 22). In this sense, there are no limits or costs to growth. When ecosystems are disrupted, the neoliberal reasoning goes, and natural resources are over-extracted, then prices rise for those services and resources, stimulating the market to replace them with innovative new products. In this sense, there is a strange logic to the neoliberal economic paradigm: it makes sense to cut down rainforests in order to grow hamburger meat because the

[15] The same result could be realised by forcing money to incur a carrying cost, on one hand, and by preventing speculation in land, on the other (Gesell 1918). A carrying cost on money – the fact that it would lose value over time – would force it to circulate rapidly and thus solve, to some extent, the problem of aggregate demand. It would, moreover, mean that the wealthy would be incentivised to invest in productive activities rather than in speculative assets. These two functions would help in driving a transition towards full employment and thus, in time, the abundance of capital goods.

[16] Natural capital is a stock that "yields a flow of natural services and tangible natural resources" - solar energy, minerals, fossil fuels, water, living organisms and ecosystems (Daly and Farley 2004: 17).

profits from doing so will be efficiently allocated and then, if and when problems arise, the market will solve those problems.

But this logic, according to ecological economics, is inherently faulty. The global economy is a *subset* of the global ecosystem, and not vice versa. This should not be too difficult to follow: Even if the global economy crashes, it does not follow that the global ecosystem will crash. But, if the global ecosystem crashes, then the global economy will quickly follow. Thus, human economies *must* be subsets of the ecosystems in which they are embedded. Thus, if a global post-scarcity economic system is to be achieved, then it must be of an *optimal scale*, where the marginal utility of growth is equal to the marginal disutility of growth (Daly and Farley 2004: 20). This implies a steady-state global economic configuration where natural capital is not depleted but, rather, the sustainable flow of ecosystem services and resources they provide are maximised. This sustainable flow of services and resources – in combination with advanced human technology – would thus provide the foundation for a post-scarcity economic system.

We can thus see how the logic of capitalism and the market society generally work against the development of a post-scarcity economic order. Given these four problems, we can now identify three broad requirements for a post-scarcity order: 1) socio-economic institutions whose function is to maintain an economic *floor* sufficient for the provision of all basic human needs; 2) socio-economic institutions that incrementally raise the floor over time by providing more goods and services at low or zero marginal cost; and 3) the embedding of 1 and 2 at optimal scale within the global ecosystem, such that the global economy becomes premised on a maximal sustainable flow of energy and material.

The first requirement speaks to the need for providing all global citizens with basic needs. As we have noted above, it is the existence of scarcity-generating institutions – like inequitable property rights, unbalanced trade, and socio-economic hierarchies – that function to prevent citizens from meeting their own basic needs. Moreover, we have suggested that nothing intrinsically prevents the abundance of capital – especially in the sense of preventing the deployment of the capital infrastructure necessary to provide all citizens with food, water, shelter, healthcare, education and transport. The development of this infrastructure and the subsequent enshrining into law of the right to *basic security* for all citizens, would thus form the foundation of a post-scarcity economic system. Although vast inequalities in wealth would still exist, no citizen would be without a basic level of security.

The second requirement speaks to the need for making humanmade capital, over time, maximally abundant. This implies embracing automation in every sector of the global economy, thus freeing

humans from labour and toil and instead enabling them to undertake creative or social work instead. The more that automated humanmade capital were owned in a distributed fashion – by communities or societies as a whole – then the more equitably the benefits from automation and capital abundance would be distributed. Although vast inequalities in wealth would still exist, the general trend would be one of increasing opportunities for consumption and production, both material and experiential.

This sense of increasing security and opportunity may enable citizens to determine true from false needs, a "primary subjective prerequisite" for a transition to post-scarcity (Marcuse 1964: 250). This might then enable citizens to formulate and seek out their conception of the 'good life'[17]. Broad-based collaboration might be more feasible in an environment characterised by basic security and opportunity. Given a collaborative research effort at the global level, the development of atomically precise manufacturing (APM) might become feasible: nanotechnological 'factories' that can produce complex material goods rapidly, efficiently, and cheaply[18]. This would usher in an age of radical material abundance for all humans.

The third requirement is that all socio-economic institutions comprising the first two requirements – the global economy, in short – be embedded sustainably within global ecosystems and the carrying capacity of the planet. This means halting and then reversing climate change, deforestation, over-fishing, over-farming, industrial agriculture, and the wasteful depletion of unrenewable resources. It means resolving tragedy of the commons problems, perhaps by means of community-based resource management and broad-based ecotaxes. Finally, it means the global deployment of clean energy systems and the development of circular economies where the waste from one industrial process becomes the input for another process. In short, this means obtaining *optimal scale* for the global economy, and thus implies transition towards a steady-state economic configuration – at least in terms of the flow of material throughout the economy.

Meeting these three requirements thus implies the near-complete reengineering of the global economy on the basis of post-scarcity. Developing and deploying the required infrastructure would

[17] Martin (2006: 324) asks this question to his lecture audiences and discussion groups, and has compiled the following list of commonly recurring answers: 1) excellence in education and education for all; 2) great TV, films, theatre, music and sports events; 3) attention to spiritual values; 4) plenty of leisure time; 5) excellent preventative medical care; 6) vibrant social get-togethers with great conversation; 7) beautiful parks, gardens, flowers and trees in the city; 8) outdoor activities and access to the natural environment; and 9) a society with more fun. Martin notes that the items on this list can be achieved without harming the planet, without spending lots of money, and are consistent with a society where mundane tasks are increasingly automated and creative tasks increasingly in demand; exactly that kind of society is envisioned by post-scarcity.

[18] K. Eric Drexler, the 'father of nanotechnology', suggests that atomically precise manufacturing is eminently feasible. There is no specific scientific or engineering breakthrough required, Drexler contends, just a well-funded, well-organised, broad-based research and engineering initiative. There is, as Drexler says, "no gap" (2013: 311).

similarly entail a prolonged period of maximal global employment. Thus, Rifkin (2017) notes that a "new economic gameplan" is required in order to resolve the crises of the 21st century; a "third industrial revolution". Such a revolution would entail a global convergence of new energy technologies, new communication technologies and new transportation technologies. The reengineering of the global economy – integrating smart technologies and automation into all industrial processes and all built environments – would thus require "one last surge of massive employment" involving "semi-skilled, unskilled, professional and conceptual labour". As Rifkin notes, robots won't be able to build out the smart infrastructure of the third industrial revolution, but, once that infrastructure was in place, the productivity gains would ensure freedom from toil for the vast majority of humankind; the foundations of a post-scarcity economic system would be in place.

This preceding outline of post-scarcity is, of course, far too brief and does not make a sufficient case for how a post-scarcity economic system might come about. In Chapter 9, however, we outline six components of a democratised economy – participatory budgeting, financial transaction taxes, a universal basic income, monetary reform, workplace democracy, and the sharing economy – that speak more directly to the nuts of bolts of transitioning towards a post-scarcity economic order.

We foreshadow those arguments here because it is important, in this initial chapter, to develop some understanding of the endpoint of a participatory model of democracy; what it ultimately is intended to achieve. In this sense, we hope that this brief outline of post-scarcity has provided some basis for such an understanding. In what follows, and in order to further consolidate that understanding, we provide an overview of the status of automation, drawing specific attention to how recent advances in computing have engendered a new kind of rapid and disruptive automation. This is important not only for understanding how automation compounds the economic crisis, but also for how it might enable a transition towards a post-scarcity economic system.

2.3.2 Automation

Recent advances in artificial intelligence and machine learning[19] have led to a new type of automation and heteromation[20] – a "second machine age" (Brynjolfsson and McAfee 2014). Up to fifty percent of

[19] Machine learning is a process whereby computer algorithms are used to detect patterns in datasets, allowing machines to 'learn' without being explicitly programmed. Self-driving cars are possible because machine learning can be used to derive patterns from data that 'teach' the car what to do under thousands of different scenarios (Bojarski et al 2016).

[20] Heteromation (Ekbia and Nardi 2014, 2017) is a phenomenon whereby institutions capture the underlying value of unpaid computer-mediated activities by "pushing critical tasks to end users as indispensable mediators" (Ekbia and Nardi 2014). The creation of restaurant reviews on Yelp.com, for example, is a form of unpaid labour that displaces previously paid work. Hence, an essential characteristic of heteromation is that "someone (typically an enterprise) benefits from the labor of others" (ibid).

all jobs – at least in the developed world – are at risk of complete or partial automation in the next two decades (Frey and Osborne 2013, 2017; Fuei 2017; Arntz, Gregory and Zierahn 2016; McKinsey 2017a, 2017b). We can thus see how automation might both compound the economic crisis and provide a means of resolving it.

Brynjolfsson and McAfee (2014) argue that a new type of automation began to occur after the turn of the millennium as a direct result of increases in computational power, increases in the availability of big data, and advances in machine learning. Thus, while in the past machines have been bad at complex tasks and good at repetitive tasks, big data and machine learning have enabled computers to analyse complex tasks and break them down into "many narrowly defined and predictable tasks one after another" (Kurzgesagt 2017). This phenomenon has enabled automation to displace jobs at a rapidly increasing rate.

In the past, automation of low-skilled work has generally been compensated for by the creation of new industries and new types of jobs. In the last two decades, however, and due in part to advances in information communication technology, new industries have created greater and greater wealth with fewer and fewer employees[21]. The argument, therefore, is that while innovation constantly creates new industries and jobs, the rate at which those jobs are created fails to meet or exceed the loss of jobs in old industries. Moreover, new jobs tend to be at the low-tech and low-paying or high-tech and high-paying ends of the market (Autor, Katz and Kearney 2006; Kurtzgesacht 2017), leading therefore to the "hollowing out" of the middle-class (Elliott 2017). A potential inflection point thus approaches where the disruption generated by machine learning and artificial intelligence could engender permanent structural technological unemployment (Ford 2013, 2015; Pistono 2015).

Two broad strategies have been suggested as a response to this kind of next-generation automation (White House 2016; Kim, Kim and Lee 2017; Autor 2017). First, is the need to provide affordable and high-quality primary, secondary and tertiary education. Better education is important – not only to produce workers highly competent in mathematics and engineering, but also to produce workers with the social and creative skills that are not machine-replicable. If workers want to "win the technological race" of outpacing automation, Frey and Osborne (2017: 269) note, then they will have to acquire social and creative skills. Indeed, Bakhshi and Windsor (2015) note the critical importance – in responding to the challenge of automation – of broad government policy that stimulates the arts and creativity.

[21] In 1979, for example, General Motors employed about 800 000 workers and made about $11 billion per year, while in 2012 Google made $14 billion while employing 58 000 people (Kurzgesagt 2017).

Second, is the strategy of "modernizing the social safety net" by developing better unemployment insurance, better access to food stamps, and better access to healthcare (White House 2016). We argue, along with Ford (2015), however, that a universal basic income is a more cogent response than a hodgepodge of government subsidies. Moreover, the impact of automation ultimately depends on "who owns the robots" (Rotman 2015; Freeman 2015). Thus, if investments in automation can be socialised – owned collectively by citizens – then broad-based automation might help to enable a post-scarcity economic system.

All in all, the potential of automation to engender a more just and equitable society should not be underestimated. As Marcuse (1964: 40) notes:

> *"Automation, once it became the process of material production, would revolutionize the whole society. The reification of human labor power, driven to perfection, would shatter the reified form by cutting the chain that ties the individual to the machinery – the mechanism through which his own labor enslaves him. Complete automation in the realm of necessity would open the dimension of free time as the one in which man's private and societal existence would constitute itself. This would be the historical transcendence toward a new civilization."*

Because technology has, for the first time, become "open-ended" – in the sense that progress no longer derives from piecemeal inventions but from systematic innovation and design – it is now possible to *design for abundance* (Bookchin 1986: 117). Accelerating the automation of labour – and ensuring that the benefits of doing so are equally distributed – is one of the key means of realising a post-scarcity economic system. Just like resolving wicked problems ideally requires stakeholder engagement, so would the broad-based adoption of disruptive automation technologies. Hence, if automation is to be accelerated, a more participatory model of democracy may be required – one that facilitated the formation of global collaborative networks.

2.3.3 Blockchains

We previously noted that machine learning and artificial intelligence are engendering new and disruptive forms of automation. We noted also that, if investments in automation could be socialised, then a transition to a post-scarcity economic system may be feasible. In this section we briefly suggest how a new computing technology – blockchains – might help to facilitate rapid automation and the socialisation of investment. A far more detailed analysis of blockchains can be found in Appendix I.

In brief, blockchains are a new kind of technology that allows for the creation of decentralised ledgers of information and thus may have important implications for the development of decentralised

currencies (like BitCoin) and the decentralised storage of personal information, including records of property. The advent of blockchains have three major implications for a potential transition towards post-scarcity. First, they make possible the development of 'smart identities' (Shrier, Wu and Pentland 2016; Kosba et al 2016; Tapscott 2016). Second, they make possible the development of 'smart property' (Swan 2015; Spielman 2016; Anand, McKibbin and Pichel 2016). Third, they make possible the development of 'smart contracts' and, inter alia, 'smart organisations' (Buterin 2014; Hernandez 2017).

Taken together, these smart technologies – by automating various processes and by efficiently matching supply and demand – could help to streamline the development of automated industries and renewable energy infrastructures across the globe. In brief, then, blockchain technologies could help to accelerate the process of automation and thereby make a transition towards post-scarcity more feasible.

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In conclusion, in this section we have briefly outlined some key lines of reasoning in post-scarcity economic thought and suggested how automation and smart technologies could undergird a transition towards a post-scarcity economic system. Just because the technological preconditions for post-scarcity exist, however, does not mean that such an economic order will be realised. As Tarnoff (2016: 2) notes, citing the central premise of Frase's (2016) book on automation and utopia, building "the future we want" is ultimately a "matter of politics, not technology". A dystopian world – where a fraction of humanity owns the robots or the intellectual property to control them – is just as likely, if not more so, than a utopian world of ubiquitous human security. As Varoufakis (2015) puts it, we have a simple choice when it comes to the rapid development of automation and machine intelligence:

> *"The moment machines pass the Turing test…[and] the moment we have 3D printers operating as public utilities… we either move to a Star Trek-like utopia, where technology becomes our slave and we manage to utilize its wealth-creating capacity for the purpose of the common good…or we are going to move towards a Matrix-like dystopia where [those who are] cut off from productive society will all become servants to the machines…in exactly the same way that Mary Shelly described, and Karl Marx followed in* Das Kapital*. The choice will depend on democratic politics. The choice is everyone's."*

Thus, we can see the connection between the emancipatory possibility of new technologies and the requirement for democratic politics. As Buckminster Fuller (1970: 273) notes, "erstwhile democracy" has never given its political leaders a total mandate to "make the entire national population physically and economically successful". Only during times of war or national catastrophe do leaders receive mandates to actually solve such problems in meaningful ways. The New Deal, Fuller notes, was not a permanent mandate, but rather a mandate to "get the old system going again with a few social improvements". Thus, we do not simply want to resolve the interrelated crises of the 21st century in an effort to instantiate the old economic model, but to transition towards a different and more emancipatory model.

2.4 Conclusion

In this chapter, we have laid the foundation for an argument as to why the development of an ICT-facilitated model of participatory democracy is necessary. Our argument is as such: If our assumption is correct that the interrelated crises of the 21st century are wicked problems, and we are correct that wicked problems are best solved by means of iterative processes of collaborative stakeholder engagement, then it follows that global collaborative networks might be required for the solution of such problems. The formation of global networks with the power to implement and test solutions, however, would require unprecedented political will and the general devolution of power and resources.

To pre-empt the following chapter, it is unclear how such political will and subsidiarity is to come about under the dominant neoliberal economic paradigm and under the dominant model of equilibrium democracy – a model that depreciates the value of participation and appreciates the functional importance of apathy. Thus, if mass engagement can successfully be reconciled with democracy by means of ICT, then it may become possible to generate the political will necessary to solve the interrelated crises of the 21st century by means of collaborative strategies.

If it is possible to form global collaborative networks, moreover, then it might be possible to use such networks to replace the current socio-economic model with a more equitable and emancipatory one: a post-scarcity economic order. The rapid advances in automation and machine learning – whilst compounding the current economic crisis – are also the means by which humanmade capital might be made more abundant, and humans freed for more creative and social work. Blockchain technologies, similarly, might enable a new type of automation that would automatically and efficiently match supply and demand for materials and services, including matching demand for investment between the developed and developing world. If global collaborative networks – enabled by an ICT-facilitated

model of participatory democracy – were able to harness these new technologies, then it may be feasible to construct a post-scarcity economic order capable of providing universal basic security for all global citizens.

Hence, the ultimate function of an ICT-facilitated model of democracy is to help resolve the interrelated crises of the 21st century and, in doing so, enable a transition toward a post-scarcity economic order. Once we have outlined the feasibility and desirability of such a model of democracy – over the course of the following five chapters – we then return to the nuts and bolts of a transition towards post-scarcity.

3. Two Democratic Models

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3.1 Introduction

In the previous chapter we noted the necessity for global collaborative networks that would enable all stakeholders to engage in an iterative process of information-sharing, problem-framing, and solution-testing, so as to resolve the interrelated crises of the 21st century. We also noted that unprecedented political will would be required in order to devolve power and resources in such a way that citizens could effectively drive such a collaborative process. Hence, we suggested the importance of an ICT-facilitated model of democracy that might enable the generation of that political will.

The dominant model of democracy today, however – the market-based equilibrium model – is premised on limited participation, the functional importance of voter apathy, and the maintenance of the status quo. If our assumption is correct, then, that the interrelated crises of the 21st century are best solved by increased stakeholder engagement, then it follows that the equilibrium model is insufficient for an adequate solution. A participatory model of democracy, premised on social learning and meaningful engagement, thus seems more appropriate to resolving such crises.

Hence, our objective in this chapter is to contrast the fundamental assumptions of the equilibrium model with those of the participatory model, in order to argue that a participatory model is necessary for the formation of those collaborative networks that are necessary for resolving the interrelated crises of the 21st century. In order to contrast the two models, we trace the development of various

historical models of democracy, paying particular attention to the assumptions that each model makes about the capacities of citizens and thus the desirability of increased participation.

We find that each model tends to adopt one of two extremes: citizens are considered either to be rational and atomistic utility-maximisers, or they are considered to be social, reciprocal, and capable of self-development and collective action. The dominant model today – the equilibrium model – is premised on the former assumptions, while the participatory model is premised on the latter assumptions. Our key contention, therefore, is that a participatory model of democracy – which emphasises rather than deemphasises stakeholder engagement – is more appropriate for a solution to the interrelated crises of the 21st century and, by extension, a transition towards a post-scarcity economic system. If the participatory model can be realised by means of ICT – and thus be reconciled with mass engagement – moreover, then we might have a practicable recipe for resolving those crises.

3.2 Democratic Models

In this section, our primary objective is to distinguish between two models of democracy: an equilibrium market-based model, on one hand, and a community-based participatory model, on the other. Our key contention is that the equilibrium model – comprising most systems of government today – is insufficient for an adequate or timeous response to the interrelated crises of the 21st century and, by extension, insufficient for realising post-scarcity. Correspondingly, we argue that the participatory model is not only better suited to responding to the complex interrelated crises but is more capable of enabling a transition towards a post-scarcity economic system.

We begin by outlining briefly the connection between liberalism and democracy, laying a foundation for an examination of the underlying assumptions of the various models of democracy. Of key importance is the idea that the term "liberal democracy" is paradoxical, with the principles of liberalism both enabling and constraining democracy. Thus, in examining the possibility for new models of democracy – the participatory model in particular – we must bear in mind that we are not seeking to replace liberalism itself, but rather to democratise its key institutions and outcomes.

This distinction in place, we examine five models of democracy: Athenian democracy, protective democracy, developmental democracy, equilibrium democracy, and participatory democracy. The Athenian model sets a historical precedent for broad-based participation in public affairs and policy-making, suggesting that it may be feasible to implement a more participatory model of democracy today. The protective model, premised on the utilitarianism of the 18th century, suggests the origin of

the idea of man[22] as a rational utility-maximiser; an idea that forms the basis for the current-day market-based equilibrium model of democracy. The developmental model, derived primarily from the works of J.S. Mill, indicates the origin of the idea that democratic participation is the means by which human capacities can be developed. In the equilibrium model – the dominant model today – this developmental idea is discarded: democracy is conceptualised merely as a market-based mechanism to select representatives and to authorise governments. In this model, citizen participation outside of elections is generally to be avoided. The participatory model, finally, rejects the fundamental assumptions of the equilibrium model and suggests, instead, that the emancipatory and developmental functions of democracy can be achieved only in a society where citizen participation is emphasised and encouraged.

As may be apparent, each model appears to be a reaction to the one before: we seem to "see-saw" back and forth between models that emphasise participation and models that deemphasise participation, or models that understand man as individualistic and utility-maximising and models that understand man as social and capable of self-development and collective action. Our key contention in this section is that the latter model – the participatory model – is more appropriate to the solution of the interrelated crises of the 21st century, not least because it is premised on broad-based stakeholder engagement. In contrast, the equilibrium model, which is premised on limited participation, appears insufficient for instantiating processes of stakeholder engagement that might help to solve those crises.

3.2.1 Liberalism and Democracy

The relation between liberalism and democracy is a somewhat troubled and paradoxical one. As Macpherson (1966, 1977) notes, democracy – in terms of universal suffrage – was installed long after the advent of the liberal state. Moreover, the liberal state arose itself in response to the development of the market society. Although markets – where goods were bought and sold – have always existed, it was not until the industrial revolution that the market society began to emerge. This new kind of society hailed the advent of a new conception of man – as self-interested, utility-maximising, and profit seeking[23].

[22] In this section we use the term "man" to refer to conceptions of human beings more generally. We understand that the term has strong patriarchal overtones, and our intention is not to perpetuate such overtones. Many of the works we cite, however, use this terminology and, in the interests of scansion, we stick with that terminology when appropriate.

[23] As Heilbroner (2000: 24) notes, the profit motive – and the idea that "man is essentially an acquisitive creature" – has been absent for most of recorded history. It is a phenomenon that arose only in the last few centuries and, even today, the notion of gain for gain's sake is "foreign to a large portion of the world's

Thus, the market society arose in lockstep with the new capitalist class who were gradually replacing the land-holding aristocracy. The liberal state arose essentially in order to safeguard the property rights of this new class, specifically those who owned the means of production. The right to political participation was thus tied explicitly to the ownership of a certain threshold of property. In short, only the rich exercised the vote. Eventually the masses – realising they had no voice in the running of the state or the market society – agitated for universal suffrage, which was granted grudgingly over the course of many decades. Thus, liberal democracy is the "unique product" – or outcome – of the successful development of the capitalist market society model (Macpherson 1966: 35).

Although "liberal" and "democracy" are two terms that often appear inseparable, therefore, their relationship is one fraught with historical tensions. These tensions continue to exist today because, as Beetham (1992: 41) notes, liberalism has historically provided both a "necessary platform for democracy" and "a constraint upon it". In other words, liberalism both enables democracy – by means of free speech and free markets, for example – but also constrains it – by means of property rights that 'lock in' political and economic inequalities. Thus, the question of whether or not there are alternatives to liberal democracy is complicated by the paradoxical relationship between the two terms: democracy seems to require liberalism, but liberalism seems to limit democracy.

In order to examine the paradox, let us examine the five components of liberalism that Beetham identifies as indispensable to democracy:

1) Freedoms of expression, association, and movement.
2) Separation of powers between executive, legislature and judiciary.
3) The institutions of the representative assembly, elected on a geographical basis, open to all candidates, and with the powers to both legislate and scrutinise the actions of the executive.
4) The principle of the limited state that respects the separation between the private and public spheres; i.e. does not claim jurisdiction over the private sphere, be it the realm of the market or the family.
5) The epistemological premise that there is no ultimate truth or good for society but rather that the only criterion for the public good is that which is chosen by the people themselves, freely organised.

As Beetham notes, these principles and institutions represent characteristics of liberalism that preceded universal suffrage; they existed in the form of the liberal state, for example, prior to the introduction of the idea of political equality. Their importance is perhaps suggested by the historical

population". But by the year 1700, 23 years before Adam Smith, a new idea had come into being: 'economic man' – a "pale wraith of a creature who followed his adding-machine brain wherever it led him" (37).

fact that attempts to undermine these principles in the name of "a more perfect democracy" have only succeeded in undermining the democratic system in whose name the principles were originally attacked (42). The reason for this, Beetham contends, is that the principles form the basis for a "set of arrangements for securing [the people's] control over the public decision-making process on an ongoing basis". Undermining the principles thus tends to undermine any form of democracy that was previously based on the principles.

In one sense this means that there is no viable alternative to liberal democracy, if we agree to recognise the principles of liberalism as constitutive of democracy. The question and controversy, however, is not really about an alternative to liberal democracy, but rather the extent to which it is possible to 'democratise' liberal democracy; i.e. the extent to which decision-making can be subordinated to popular control, and the extent to which we can equalize the conditions under which such control is exercised. It is in this question, then, that we find contrasting versions of democracy in the various models.

If we turn to Dewey for a moment, we see that he suggests a conception of liberalism as 'radical' or 'renascent'. This form of liberalism would entail three themes (Campbell 1995: 187-8). First, it would be committed to mediating social transitions – to reengineering social institutions such that they match the needs and potentialities of a continuously evolving society. Second, and following from the first theme, this liberalism is not premised on limiting change and maintaining the status quo, but on seeking out the root causes of inequalities and "using social power to change the system". Third, this kind of liberalism must be premised on instantiating change by peaceful means. For Dewey, then, liberal democracy is the "attempt to apply social intelligence to the process of shared living" (189); i.e. liberalism should be conceptualised in terms of ongoing processes of social reconstruction. If the liberal tenets can be 'democratised' then this kind of radical liberalism might be achievable.

To flesh out this idea of democratising democracy, we can draw on Dahl's model of polyarchy. Polyarchy, Dahl (1956: 84) tells us, is an "inadequate, incomplete, primitive ordering of the common store of knowledge about democracy". Its formulation, however, might help us to construct, "somewhere between chaos and tautology", a satisfactory theory about political equality. In this sense, we can use polyarchy as a benchmark by which to compare the various models we subsequently examine. Dahl (1970: 84) defines polyarchy as a political system in which the following eight conditions or norms exist to a "relatively high degree".

During the pre-voting period:

1) Any citizen who perceives an alternative not presently on the list of alternatives scheduled for voting, can insert her preferred alternative among those scheduled for voting.
2) All citizens possess identical information about the alternatives.

During the voting period:

3) Every citizen votes.
4) In tabulating these votes, the weight assigned to each citizen is identical.
5) The alternative with the greatest number of votes is declared the winning choice.

During the post-voting period:

6) Alternatives (leaders or policies) with the greatest number of votes displace any alternatives (leaders or policies) with fewer votes.
7) The orders of elected officials are executed.

During the inter-election period:

8.1) Either all inter-election decisions are subordinate or executory to those arrived at during the election stage (all inter-election decisions were included in the initial election; i.e. the election was controlling);

8.2) OR new decisions during the inter-election period are governed by the preceding seven conditions (meaning that citizens can vote on all inter-election decisions)

8.3) OR both.

For reasons of parsimony, we can assume that in most models of democracy the voting and post-voting conditions are standard fare, although the conditions may not be properly realised in practice due to corruption or incompetence. It is the pre-voting and inter-election periods that concern us – conditions 1, 2, and 8. Clearly, these conditions are seldom, if ever met, within modern nation-states. First, citizens cannot generally insert their preferred candidate or policy onto the list of available alternatives – political parties select candidates on behalf of voters, and elected politicians and officials formulate policies. Second, even if it were possible for citizens to insert their preferences, it would be difficult or impossible to provide identical information on the costs and benefits of all alternatives. Third, citizens generally have little or no recourse during the inter-election period; the decisions made on their behalf are not decided prior to election, and nor can citizens vote on those decisions after the election.

As Dahl notes, the first and second conditions cannot generally be met in any organisation of a scale larger than a very small group. Hence, although meeting these conditions would engender a more prefect democratic outcome, the problem of scale generally renders that outcome infeasible. Similarly, the problems of scale and economy limits the frequency and intensity with which citizens can ensure that decisions made during the inter-election period reflect their preferences. Elected officials cannot spend every waking hour discussing the concerns of citizens, and citizens cannot spend every waking hour queuing up to speak to their officials. If elections were continuous – like markets – however, then there would be no need for the eighth condition (Dahl 1956: 73). Under this scenario, the previous seven conditions would form a scaffold for an iterative cycle of preference articulation or decision-making, allowing citizens to apply pressure on officials or collectively adapt and modify policy themselves. But elections are not continuous – again due to problems of scale and economy – and thus citizens generally have limited power over officials during the inter-election period.

Despite these shortcomings and defects, Dahl (1956: 150) concludes that polyarchy does nonetheless "provide a high probability that any active and legitimate group will make itself heard effectively at some stage in the process of decision making". We should agree that, all things being equal, this is "no mean thing". Moreover, it is the "slack power" in the system – the large amount of potential influence that citizens can bring to bear if they become truly dissatisfied – that helps to legitimate and stabilise the system (Dahl 1961)[24].

Be this as it may, three core problems prevent polyarchy from better representing and empowering citizens (Dahl 1970): economic inequality, the corporate 'leviathan', and the democratic 'leviathan'. Economic inequality limits the capacity of some citizens to influence officials during the inter—election period. The corporation leviathan – the concentration of wealth – limits the capacity of citizens to field their own candidates, to influence officials, and to disseminate information. The democratic leviathan speaks to the fact that the problem of scale implies the necessity for political representation, and representation, in turn, leads to elite democracy. Thus, we can see that Dahl is not an apologist for the polyarchal model: he is not seeking to defend it against all odds, but rather to explain where it works and where it does not. We would therefore agree with Krouse (1982), that Dahl's theory of polyarchy has consistently evolved towards a more satisfying reconciliation between a minimalist and a participatory model of democracy.

[24] However, as Keim (1975: 6) notes, this conception of participation renders politics "at best" an instrumental activity. The citizen is generally unconcerned and uninvolved in policy outputs, and becomes involved only periodically in order to express dissatisfaction with a particular issue. Moreover, increased participation is less the result of self-actualization than it is a rational utilitarian calculation as to the costs and benefits of participation. Political participation in this sense constitutes an effort to "protect threatened interests" (7).

In this sense, a participatory model of democracy might be premised simply on meeting conditions 1,2 and 8 of the polyarchal model. We might also see how polyarchy relates to the conditions for liberal democracy: freedom of expression, separation of powers, representative assemblies, the limited state, and the epistemological premise that the criterion for the public good should be chosen by the people, – are all generally necessary if the conditions of polyarchy are to be met. In this way, and to pre-empt our forthcoming examination of the equilibrium and participatory models, we are not suggesting that the tenets of liberal democracy need to be substantially revised in order to reconcile deliberation with mass engagement[25]. Moreover, we are suggesting that a participatory model does not necessarily conflict with the polyarchal model; it is, rather, a culmination of all eight conditions.

Finally, before we proceed with our investigation of democratic models, we must draw attention to a foundational claim that runs throughout this dissertation: by means of ICT it is possible to solve the problems of scale and economy that have always limited the realisation of the first, second, and eighth conditions of polyarchy. Thus, we contend, ICT is the means by which citizens can insert their own alternatives, the means by which identical knowledge might be provided, and the means by which elections can be made 'continuous'; i.e. citizens can exercise power during the inter-election period. We develop this argument over the course of the following chapters. For the moment, we turn to ancient Athens.

3.2.2 Athenian Democracy

No model of democracy better demonstrates the extent to which the state can be democratised than the Athenian model. In ancient Athens the direct and widespread participation of citizens in public administration and public decision-making formed the practical foundation of government for more than 150 years. Athenian democracy came to an end, not due to internal decline, but due to the conquer of Athens by Phillip II and his son, Alexander of Macedon. Egalitarian and ongoing participation in public life were the hallmarks of Athenian democracy – with between 10 and 20 percent of citizens participating in public service and administration at any one time. Such participation was both a right to be enjoyed and a duty to be undertaken[26].

[25] It is only in the idea of limited state that we might conflict with the principles of liberalism – not in the sense of advocating for bigger government, but rather in advocating for increased taxation and certain restrictions on property rights. These restrictions in no way amount to an 'attack' on property rights, however.

[26] The word 'idiot', indeed, derives from the Greek word for a private person who did not participate in public affairs. We must remember, however, that – in light of modern conceptions of inclusion – Athenian democracy failed miserably, excluding women, slaves and foreigners. But we should not let this abject failure distract us from the larger, and more extraordinary, underlying achievement.

In this section we briefly examine some of the key principles, procedures and institutions of Athenian democracy. Although ancient Athens was very different to a modern liberal democratic state, Athenian democracy does set a precedent for broad-based citizen participation in public affairs and policy making. Moreover, it allows us to see what kind of institutions and economic arrangements might be necessary in order to create a "democracy-compatible economy" (Fuller 2015) in the modern age. Thus, although our outline of the Athenian model might seem like a historical detour right now, we will refer back to some of these institutions and procedures in subsequent chapters. For the moment, we need simply to acknowledge the precedent that ancient Athens sets for substantial and broad-based citizen participation.

Athenian democracy was premised on the idea that all citizens were capable of political engagement, regardless of wealth or capability, and that decisions were inherently fairer when made my large groups of ordinary citizens rather than small groups of elites (Good 2014; Fuller 2015). The Athenians thus avoided elections whenever possible – believing that elections tended to both favour the wealthy and incentivise unhealthy competition for power and prestige. Instead they selected their representatives and public servants on a voluntary basis and by use of a special randomization machine, called a *cleroterian*. To further ensure equal representation, positions of power were rotated as often as possible, giving every eligible citizen a chance to hold meaningful office.

The key decision-making body of the Athenian state – the Assembly – was an exercise in direct democracy, with every citizen free to both attend and to participate. Each Athenian citizen had the right of *isegoria* – to express himself publicly, on equal terms with other citizens, in a forum where public affairs were decided (Fuller 2015: 27). The processes of the Assembly were more about pragmatism than philosophical ideals (28): citizens knew that their own time, and the time of their fellow citizens, was precious, and thus disliked long-winded speeches or incompetent speakers. *Isegoria*, then, was not just a substantive right to speak and to be heard, but also a duty to speak in an understandable, knowledgeable and public-spirited manner. *Isegoria*, in this sense, was about sharing one's knowledge and opinion for the greater good of the community[27].

The Assembly met almost every week in order to make important decisions and to oversee the running of public affairs. Because the Assembly was not a permanent grouping, another body – the Council of Five Hundred – undertook the day-to-day work of implementing the decisions made by the Assembly. The Council was composed equally of 50 men from each of the ten Athenian tribes, themselves in turn chosen by lot. In addition, some 700 magistrates and thousands of citizen jurors were chosen by lot

[27] We can see here, then, how the principle of *isegoria* might relate to requirement for stakeholder engagement that is necessary for the resolution of wicked problems.

every year, their conduct overseen by the Assembly and the Council. It was this "institutional array of interlocking agencies and institutions" that allowed the poorer majority – the demos – to express power (Good 2014: 11).

Athenian democracy, Stockton (1990: 97) notes, placed the administration of justice "firmly" in the hands of its citizens. Judges, juries, prosecutors and attorneys were all "amateurs" in the sense that they were private individuals performing public services. Jury duty was strictly voluntary, and any citizen could prosecute a case. Giving or receiving money for legal advice was itself illegal and judges were selected by random, tasked merely with keeping order in the courtroom. All decisions as to guilt, innocence, or punishment were made solely at the discretion of the jury, which comprised from between 200 and 2000 citizens depending on the importance of the suit to public interest. Thus, in Athens, the courts were a "venue of mass participation" that "completely penetrated society" because, even if a citizen had not attended a case themselves, they would certainly know someone who had (Fuller 2015: 30).

Athenian democracy – both in its political and legal systems – therefore required citizens to participate frequently in public affairs. This requirement, however, might have disadvantaged poorer citizens who were less able to contribute time to debate and public service. The Athenians solved this problem by paying citizens to participate. Each citizen who attended the assembly or sat on a jury was paid half a drachma per day – approximately half of what an unskilled labourer would have earned, and about $30 by today's standards (Fuller 2015: 139). According to Aristotle (cited in Fuller 2015: 139), "all citizens take part in…government because of the predominance of the masses, and they participate and exercise their citizen rights because even the poor are able to have leisure by receiving pay".

Ensuring that the democratic system was not subverted by the wealthy and powerful, however, meant that a "democracy-compatible economy" was needed (Fuller 2015: 345). Such an economy required that the power conferred by holding public office did not enable citizens to accumulate wealth, and that wealth did not allow citizens to acquire public office. The first condition – of preventing those holding public office from accumulating wealth – was met by the basic rules of Athenian democracy: large juries, equality before the law, payment for participation, random selection of magistrates and public servants, frequent turnover of officials, restrictions on holding the same office multiple times, and the freedom granted to any citizen to speak and to be heard. These rules made it difficult for a citizen to use the power of his office to accumulate private wealth.

The second condition – preventing the wealthy from accumulating power – was met by requiring and incentivising the wealthy to fund the provision of public goods, on one hand, and ensuring that a basic level of economic equality existed, on the other. Although most Athenians contributed to the public

purse via small taxes and levies, the wealthy – those with property valued over a certain threshold – were required to pay a capital levy tax – the *eisphoria* – to boost public funds in times of need. Moreover, the truly rich were required – as a 'liturgical duty' – to individually fund public goods – such as outfitting naval ships, purchasing gymnastic and musical equipment, hosting banquets, and sponsoring athletic teams. Although these duties were set by law, wealthy citizens were incentivised to compete with one another in order to fulfil or over-fulfil their duties, gaining social capital by virtue of demonstrating their good citizenship.

In terms of basic economic equality, wages in Athens were relatively egalitarian with highly skilled workers earning perhaps two or three times the wages of unskilled workers. The average value of a house in Athens was 410 drachmae, or less than two years income from unskilled labour (Fuller 2015: 351). Poor, orphaned, or disabled citizens received state-subsidised financial support, and revenue from publicly owned gold and silver mines was distributed equally among all citizens. So, while it was possible in Athens to become extremely wealthy or extremely poor, it was not possible for some citizens to "own" others by purchasing their political compliance (Fuller 2015: 351). Thus, a basic level of economic equality undergirded Athenian democracy.

Ancient Athens thus sets a precedent for realising direct democracy and deliberation at scale[28]. Similarly, it sets a precedent for self-government and meaningful citizen participation in public affairs and policy making. Indeed, when Pericles, in his famous Funeral Oration, praised Athens as a model for other Greek states to follow, he was referring – not directly to laws and statutes – but indirectly to the "individuality, open-mindedness, and independence" of her citizens and to the "excitement and novelty…of this great experiment in participation and equality" (Stockton 1990: 186). This great experiment proved that direct democracy at scale was both feasible and desirable.

The fact that this achievement has been "ignored or traduced in the conservative British and American historiography" (Good 2014: ix) should not, therefore, dissuade us from using the historical precedent of Athenian democracy as the basis for envisioning a return to a more participatory model of democracy. Specifically, the principle of broad-based citizen participation and an economic model that is "democracy-compatible" are themes to which we frequently return.

[28] In terms of Dahl's model of polyarchy, we can see that all eight conditions were realised in ancient Athens. Citizens could insert new preferences, access to information was generally identical, election procedures were fair, and, moreover, elections were continuous or controlling: all decisions were subordinate to the preferences of citizens themselves.

3.2.3 PROTECTIVE DEMOCRACY

As Macpherson (1966: 5) notes, the original meaning of democracy – derived from classical Athenian democracy – was rule by the common people, rule by the lowest and largest class. Hence, democracy has generally been considered a bad thing for most of history and has been "feared and rejected by men of learning, men of substance, men who valued civilized ways of life"[29]. Thus, the next model of democracy we examine – protective democracy – emphasises self-protection: the prevention of the masses from using the vote to meddle with individual property rights.

We have already noted that the rise of the market society and the advent of the liberal state were, to some degree, coterminous. We have also noted that the market society engendered a new conception of man as a rational utility-maximiser. As Macpherson (1966) argues, the idea of humans as rational utility-maximizing beings became the basis, in the 18th century, for a new kind of economic and political thought. The preeminent figures of this new kind of thought were, of course, Jeremy Bentham and John Stuart Mill, both much influenced by Hobbes's account of human nature. Their theory of utilitarianism – that the morally right view is that which produces the most good for the most people overall – is "one of the most powerful and persuasive approaches to normative ethics in the history of philosophy" (Driver 2014: 1). From utilitarianism arose an early model of democracy premised on the protection of property, hence Macpherson (1977) refers to it as "Protective Democracy".

It was from the theory of utilitarianism that Jeremy Bentham and James Mill, John Stuart Mill's father, deduced the need for the democratic franchise (Macpherson 1977: 25). This deduction arose naturally from the fact that utilitarianism was an essentially egalitarian theory – based on utility-maximising individuals interacting in a free society[30]. The teachings of classical political economy, however, subverted the egalitarian principle (28). Bentham took it as natural that, even in a state of social prosperity, "the great mass of citizens" would have nothing to sell but their labour, and thus be "always near indigence" (ibid). Because of this assumption, it was also assumed that the incentive to produce originated only in the propertied classes. If the incentive to produce was to be safeguarded, then property rights must be protected. Hence, if the choice was between equality and security (of property), the reasoning goes, equality must yield (30).

[29] Plato (1966) famously argued that democracy was the harbinger to despotism and was generally an inferior form of government as compared to government by elite 'philosopher-kings'.
[30] Dewey (1927: 22) argues that the doctrine of individualism is a myth. Humans have always shaped and been shaped by associations with other humans. Furthermore, while the industrial revolution rapidly changed the nature of these associations, it did not magically render humans into isolated atomistic actors.

We can thus summarise the model of protective democracy by means of the following assumptions about human nature and the prevailing social system (33):

1) every individual acts to secure their own interests and to maximise utility without limit, leading necessarily to conflict between the desires of all other individuals;
2) the measure of how individuals maximise utility can be equated with the maximisation of material goods and/or power over others;
3) most citizens will never escape a subsistence existence, and thus the fear of starvation rather than the hope for gain is the driving factor behind their behaviour;
4) because those with property drive the process of production, their property must be protected, if social progress is to continue; and therefore
5) property rights must override the principle of equality

All in all, then, the model of protective democracy, although partially premised on egalitarianism, failed to live up to the democratic ideal. This brief outline of an early model of democracy is important for two reasons. First, it provides important context for the model of democracy that followed. Second, it enables us to identify the roots of the 20th century equilibrium model of democracy that remains predominant today; i.e. a model premised on self-protection, the primacy of property rights, and the idea that elites are the engine of social progress.

3.2.4 Developmental Democracy

By the middle of the 19th century, two broad changes induced substantial reconsideration of the protective model of democracy (Macpherson 1977: 44). First, the working classes had come to be seen as dangerous to property. Second, and not unrelated, the conditions of the working classes were becoming "so blatantly inhuman that sensitive liberals could not accept it as either morally justifiable or economically inevitable" (ibid). Hence, a new "developmental" model of democracy arose, primarily through the writings of J.S. Mill.

The key difference between the protective and the developmental models is that the latter has "a moral vision of the possibility of the improvement of mankind, and of a free and equal society not yet achieved" (47). The democratic system, rather than a means of protecting property, was seen as a mechanism by which to better humankind by means of political participation. The means by which the model was to be realised, for Mill, was through the beneficial and learning effects of political participation, on one hand, and through the development of worker cooperatives and better educational systems, on the other.

By these means, then, it was intuited that citizens would gradually develop their full capacities as human beings. At the root of this model, then, is a conception of man not as a consumer and appropriator – a rational utility-maximiser – but as "an exerter and developer and enjoyer of his capacities" (48). This more idealistic model of man – and of democracy – was to prevail in liberal-democratic thought until at least the middle of the 20th century.

Mill did fear, however, that if the democratic franchise were extended universally that the working classes would use their power unwisely and in their own self-interest. To resolve this problem, he suggested a system of plural voting where the highly educated would enjoy five or six votes to every one vote enjoyed by the unskilled, with those of varying skills and education having a quantity of votes somewhere in between. Hence, Mill cannot be ranked as a full egalitarian (59). Mill's fears about the tyranny of the majority, however, were unfounded.

Despite the introduction of male suffrage, just a few years after Mill's death, and universal suffrage a few decades after that, a tyranny of the majority never came about. The key reason for this, Macpherson argues, is that the party-political system successfully "blurred" the lines between class difference and thus "blunted" the edge of class conflict (65). This was a necessary outcome, he continues, because the "basic job the political system had to do" changed with the introduction of the universal franchise. Before the franchise, the job of the system was to respond to one class: those with property. After the franchise, the job was to respond to two classes with somewhat opposed interests.

This change meant that governments – and political parties – needed room for compromise and manoeuvre. But a government cannot have room for manoeuvre if it is forced to be too responsive to the demands or interests of its party, its constituents, or any one mandate. Thus, a party-political system arose that necessarily made broad promises to the electorate, but seldom made good on those promises when in power. As Sartori (1976: 13) notes, parties came to be accepted – after much initial opposition – when it was realised that "diversity and dissent are not necessarily incompatible with, or disruptive of, political order".

Moreover, because appeal to a mass electorate required a centralised party machine, and because endorsement by the party became "virtually the only way of getting elected to Parliament" (Macpherson 1977: 68), the leadership of the party was able to control its MPs, preventing MPs from breaking with party decisions in an attempt to fully represent the class interests of their constituents. Thus, due to the role of the party system in blunting class conflict and maintaining an unequal society, it failed to "induce the widespread popular participation in the political process which [the developmental model] required" (69). We would suggest that this problem still exists today.

All in all, then, while the developmental model represented an idealistic, progressive and more humanist break with the protective model, the rise of the centrally-controlled political party successfully blunted class conflict and thus the broad-based political participation – that was central to Mill's conception of how citizens were to incrementally develop their capacities – never came into being. Be this as it may, the developmental model influenced much subsequent democratic thought, perhaps, most conspicuously in the pragmatism of John Dewey (1927) who argued that self-development, by means of a "method of cooperative intelligence", was the defining characteristic of democracy.

An idealist assumption about the capacity of the individual to develop their capacities by means of the democratic process, however, ultimately undid the developmental model. In the end, Macpherson (1977: 76) notes, it was the "failure of the developmental theorists to see the difference between the actual democratic system which was very much like the market (although far from a fully competitive market)", and their "idealistic developmental hopes" that ultimately led to the failure and rejection of the developmental model.

3.2.5 Equilibrium Democracy

This failure led theorists to discard the developmental model and revert back to the protective model, albeit one that was bolstered with a theory of exactly how democracy related to the market system. Specifically, this model claims that democracy is a market-based process for equilibrating between the demand and supply of political goods, hence the focus on equilibrium. It is, as Macpherson (1977: 77) notes, more properly called the "pluralist elitist equilibrium model" because all three characteristics are central to it. Pluralism because it claims to be representative of different interests, elitist because it claims that elites make for the best political entrepreneurs, and equilibrium because it enables stable systems of government.

In just a few chapters of his influential book *Capitalism, Socialism and Democracy*, Joseph Schumpeter in 1943 outlined the tenets of the new model. Responding to sociological data that revealed, contrary to expectation, that voters were generally apathetic, ignorant and incompetent[31], Schumpeter discarded 'classical' democratic theory and suggested instead an objective description of democracy:

[31] Anthony Downs (1957), in his economic theory of political action, explains that this ignorance and apathy are rational outcomes associated with the costs of attaining knowledge and participating politically. Lower voter turnout and general ignorance is thus a natural implication of the rationally-bounded citizen. Furthermore, Downs argues, party ideology plays a key role in helping voters – at low cost – to articulate their interests. Voters do not need to familiarise themselves with the complex policy issues at hand, but simply choose an ideology – representing a broad basket of policies – that most conforms to their general preferences.

one that understood democracy purely as a market-based system of government and a procedure for electing officials (Pateman 1970).

The main stipulation of this model is that "democracy is simply a mechanism for choosing and authorizing governments, not a kind of society nor a set of moral ends" (Macpherson 1977: 78). The mechanism consists of competition between two or more "self-chosen sets of politicians (elites)" who are organised in political parties to acquire the votes which will "entitle them to rule until the next election" (ibid). The role of voters is not to decide political issues but rather to choose representatives who will decide those issues for them. Thus, Schumpeter (1943: 269) defines democracy as "that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote".

In this formulation, then, the democratic method is synonymous with the market: voters are consumers who spend votes in the political marketplace so as to purchase the best product – competing political entrepreneurs. Participation for the sake of participation plays no meaningful role. Voters should participate only through elections in order to keep the system stable and functioning. Their perceived role is thus to periodically "assess regime performance and to register preferences" (Keim 1975: 9). In this sense, then, the equilibrium model "depreciates the value of participation and appreciates the functional importance of apathy" (Connolly 1993: 196-7). This market-based conception of the democratic method, and of the functional role of limited participation, have greatly influenced all subsequent democratic revisionist thought.

If the analogy between a perfectly competitive market and the political system held true, and thus delivered sustained social progress, then we might accept that competition between elites was a viable means of organising political systems. There are, however, various problems with the analogy of the political system with a perfectly competitive economic system (Ware 1979: 35). These problems relate, first, to analogy of the citizen with the perfect consumer and, second, with the analogy of the political party with that of the firm in a perfectly competitive economy.

First, while consumers in an economy have many goods to choose from, voters can choose only between a limited set of options at limited times. Moreover, the voter cannot generally express greater or lesser dislike for one or more candidates; they cannot vote more than once or, generally, for more than one candidate. There is thus limited incentive for the voter to expend time and resources to become informed about the political marketplace. This engenders, in turn, two problems: 1) if the voter has little incentive to become better informed, then there is little incentive for the political party to better inform the voter – and thus no incentive for parties to provide "what the voter wants over a long period of time" (ibid); and 2) because voters have little incentive to expend

resources to become better informed, they will opt for information which is cost-free; party ideologies thus provide the voter with cost-free political information (Downs 1957).

If voters, all things being equal, were able to make informed decisions based on party ideologies – or easily form new parties if they found existing ideologies to be undesirable – then the market-based ideology might hold. There are, however, significant limitations to the formation of new parties. As Ware (1979: 38) argues, to become a major political party, an emerging one must attract substantial "financial and organisational resources" if it is to successfully provide cost-free information to voters. Given the incumbency of established parties, an emerging party would likely require even more resources in order to 'break into the market'.

This tends to limit the emergence of new parties in two ways. First, large contributors like firms and trade unions, are disincentivised because of the risk in backing an untested party. Second, individual citizens – who might actually be supportive of the new party – are disincentivised by the free-rider problem[32]. Thus, although the conventional wisdom holds that, in a free electoral system, new parties (new competitive suppliers) will emerge in response to the failings of old parties (existing suppliers), this wisdom does not necessarily hold true. The obstacles to the formation of new parties thus leads to an *oligopoly*; a state of limited competition, where the market is dominated by only a few producers or sellers. Three aspects of (economic) oligopolies are relevant (Ware 1979: 43):

1) They have little incentive to engage in price competition or to improve the quality of existing products and services[33]
2) They are generally content with a fixed and stable market share
3) They generally seek to differentiate their products from those of their rivals, and compete through advertising that draws on sentiment and skewed, or false, information

By analogy, then, we might compare three aspects by which political parties tend to compete (Ware 1979: 51):

[32] Even if a large group of citizens were supportive of the new party, a collective action problem emerges. If the success of the new party depends on the broad-based support of citizens – in the form of time and financial contributions – then any one citizen is disincentivised from personally contributing; reasoning that their contribution would be so small as to not make a difference. Thus, even though citizens might individually be supportive, the free-rider problem works against the new party attracting sufficient support and resources.
[33] Albert Hirschman (1970) explains this tendency brilliantly in terms of the two options that consumers have: voice or exit. Consumers can either complain or they can stop purchasing the firm's products. But in an oligopolistic setting, exiting customers from one major firm become new customers for another major firm, and no 'signal' is sent that quality needs to be improved. We return to the concepts of voice and exit in Chapter 6.

1) On specific policy proposals (ideologies) that "have always been central to the long-standing definition of political division" (more government/less government; 'progressive' values/traditional values; more taxes/less taxes; regulation/market-based solutions)
2) Allegedly different, but generally unspecified, approaches to agreed policy goals (better education, better healthcare, more jobs)
3) Appeals to sentiment, tradition, and lifestyles of voters and party members

As Ware argues, it is only on the first of these points that parties engage in any level of substantive competition. These political divisions are often so long entrenched, however, that public debate is seldom educative or transformative. As long as these ideological divisions remain unquestioned, the parties in question can be assured generally of maintaining their 'market share' of the electorate. Party candidates who attempt to redefine these divisions, to describe alternate "political universes", are generally discouraged and sanctioned for doing so; the party machine sometimes operating to strip them of resources or influence. Real competition between political divisions is thus maintained, as is the general status quo.

Conditions of oligopoly thus result in a tendency towards party cartels (Katz et al 1992; Katz and Mair 2009; Ignazi 2017). Cartel party theory holds that political parties "increasingly function like cartels, employing the resources of the state to limit political competition and ensure their own electoral success" (Katz and Mair 2009: 753). The rise of cartel parties derives from the fact that, over several decades, ideological conflicts – longstanding political divisions – have become transformed into simple "amorphous differences in general left-right orientation" (757). This engendered three problems for the party.

First, it reduced the ability of parties to make substantial appeals to voters based on class or cultural solidarity. Second, the rise of mass media and professional pollsters increased the cost of campaigning at the same time that individual voters were less willing to contribute resources. Third, parties increasingly became entrapped in a dilemma between cutting the welfare state or increasing public debt, which incrementally transferred wealth – not from the rich to the poor – but from the "productive elements of society to the bond holders" of public debt (758). As a response to these crises, Katz and Mair contend, political parties became increasingly dependent on controlling state subventions – state resources – in order to meet the gap between declining traditional sources of revenue and perceived needs.

Over time, then, political parties became more and more integrated with the functions and powers of the state itself, and thus further and further divorced from society at large. Moreover, because all parties faced the same problems, and election victory is never ensured, it became in the interests of

all (major) parties to maintain a system where the resources of the state sustained party infrastructures. A natural tendency towards oligarchy and a cartel system thus developed.

With the development of a cartel system, the goals of politics became "self-referential, professional, and technocratic" and what was left of interparty competition became focused on the "efficient and effective management of the polity" (755). What the cartel system has engendered, "above all", is a state of affairs where the capacity for problem solving is "manifested less and less in the competition of political parties" (ibid). The party has thus become a "Leviathan with clay feet"; powerful in the political arena but weak in the "eyes of public opinion" (Ignazi 2017: 262).

We might then see how the failures of the equilibrium model are linked directly to its incapacity to realise certain important conditions of Dahl's model of polyarchy. The more that citizens are unable to insert their own preferences, the more unequal the provision of information about alternatives becomes, and the less power citizens have during inter-election periods, the less the model corresponds with the democratic ideal. In due course, these failures come to define the model itself: it becomes orientated towards the voting and post-voting periods and, thereby, politicians become incentivised to 'manage' the polity in the interests of maintaining power.

Our contention here, then, is that the equilibrium model, and the party system it engenders, is insufficient for an adequate response to the interrelated crises of the 21st century, inadequate because it generates several problems: short-term thinking, a failure to account for unrepresented interests, institutional drift, a failure to devolve power to the local level, weak multilateralism (the failure to project solutions across transnational borders), self-referential decision-making (lack of consideration of spill-over effects), and interest group concentration (disproportionate power of lobbyists) (Held and Hervey 2009; Mansbridge 2012; Triffitt and McLeod 2015; Ward 2016). We briefly elaborate on these problems here:

- Short-term thinking is a result of the nature of the election cycle and the reliance of political party machines on the contributions of the financial sector (Mansbridge 2012). Delivering bad news or suggesting bold shifts in paradigm, moreover, is a poor strategy in the Schumpeterian political marketplace, and thus ad hoc decision-making prevails (Challen 2009).
- Accounting for the interests of future generations, or for those segments of the population who lack political and economic capital, is unlikely to ensure election or re-election. As Macpherson (1977: 87) argues, the equilibrium model responds only to *effective demand*: demands that "have the purchasing power to back them". Thus, insofar as the political

purchasing power is money[34], we "can scarcely say that the equilibrating process is democratic in any society…in which there is substantial inequality of wealth and of chances of acquiring wealth" (ibid).

- The equilibrium model is premised on protecting the status quo, rather than transcending it[35]. This creates institutional "drift" – the unimpeded trajectory of change brought about by both trend and inaction. As Mansbridge (2012) notes, it is drift that results in the domination of the political system by corporations, and it is drift that prevents a coherent response to impending environmental and economic crises. In other words, because the equilibrium model is premised on self-protection, and self-protection implies the perpetuation of the status quo, then the status quo tends to be perpetuated regardless of its ecological and economic unsustainability. Thus, institutional drift perpetuates crises rather than resolving them.
- Devolving power to the local level is anathema to political systems which are premised on the centralisation of power by means of the party-political structure. This is the "democratic leviathan" about which Dahl (1970) warns.
- If self-protection and self-interest are the foundation for national politics, then the same principles will likely form the foundation for global politics; weak multilateralism – the inability to make binding collective decisions – is the result. As Fuller (2015: 161) argues, electing citizens at the national level and then allowing them to represent the state internationally creates a "closed circuit" between national and international politics that "at no point allows for input from ordinary citizens but which can be easily manipulated by those with sufficient resources".
- Similarly, officials who draw their power from an apathetic and ignorant constituency are more likely to engage in self-referential decision-making, enacting short-term policy based on a limited conception of interests and a disregard for spill-over effects.

[34] Insofar as the purchasing power is the expenditure of time and energy, the case for equality is stronger. But differences in education and occupation mean that the effectiveness of expending time and energy differs: those with greater education and more extensive social networks are at a marked advantage. Because those who are uneducated and not socially connected know this, Macpherson reasons, they become apathetic. Social inequality thus "creates political apathy" (1977: 88).

[35] To further elaborate on this point, the idea of the separation of powers – central, as we have seen, to the liberal tradition – is an idea premised on resistance; a mechanism by which to protect individuals from the oppression of the state. While this may be a worthy and important objective, the institution of liberal democratic government now often finds itself gridlocked due to resistance on the part of organised elites.

- Finally, minimal participation by the majority of the electorate results in the aggregation of power in the hands of elites (Lessig 2011, 2013; Gilens and Page 2014)[36]; the majority of whom project power in order to maintain the status quo rather than change it.

If the assertion is accurate that the equilibrium model engenders these problems, then we might see how the model is insufficient for solving the crises of the 21st century. Self-protection, minimal participation, and elite capture do not align well with an adequate and timeous response to these crises. Moreover, if our assumption is correct that these crises are "wicked" problems – the solutions of which require an iterative process of problem-solving that involves all stakeholders – then the equilibrium model, which "depreciates the value of participation and appreciates the functional importance of apathy" (Connolly 1993: 196-7), seems particularly unsuitable. By extension, then, it seems unlikely that the equilibrium model can facilitate a transition towards post-scarcity.

In essence, then, the equilibrium model allows us to "tolerate conflict but not to transform it into cooperation" (Barber 1984: 19). Without greater cooperation among all stakeholders, it seems unlikely, then, that the aforementioned crises will be adequately resolved. Be this as it may, the equilibrium model is a "substantially correct" description of the actual systems of government prevailing in most Western liberal-democratic nations today (Macpherson 1977: 83). What kind of model, if any, could replace it?

3.2.6 Participatory Democracy

The final model we examine, and one which harkens back to the Athenian model, is a participatory model of democracy. Participatory theory is premised on the idea that individuals and their institutions "cannot be considered in isolation from one another" (Pateman 1970: 42). Instead of the rational utility-maximiser of the protective and equilibrium models of democracy, the participatory model understands humans as enmeshed in webs of reciprocal[37] social relations from which they derive value. Thus, the mere existence of representative institutions at the national level is insufficient for realising true democracy.

[36] According to Fuller (2015: 9), numerous studies show the direct correlation between the amount of money spent on an election campaign and the success of that campaign, indicating that democracy has become a "numbers game". Indeed, the Citizen United decision in the USA – which allowed for unlimited campaign donations on the part of individuals and corporations – has been described by Jimmy Carter as facilitating "legalised bribery" (Weaver 2016).

[37] The social and behavioural literature supports the idea that humans are "strong reciprocators", acting on the basis of positive and negative reciprocity (Fehr and Gächter 1998; Dohmen et al 2009; Gintis 2000). In other words, we respond to positive social behaviour with positive behaviour, and negative behaviour with negative behaviour. Moreover, the maintenance of social norms and economic incentives seems to result more from this reciprocal behaviour than from calculations of utility.

True democracy, from the perspective of this theory, requires broad-based participation through which citizens acquire the necessary social and psychological tools to meaningfully contribute to their own governance. Moreover, it is through participation that citizens gain self-awareness, and it is by means of self-awareness that they become able to identify their political interests (Bachrach 1975: 42). In this sense, then, citizens cannot meaningfully aggregate their preferences by means of periodic elections, because broad-based participation is the means by which those preferences are formed in the first place. Participatory theory is thus about creating the conditions for a democracy itself; for "democratising democracy" (Pateman 2012).

For participatory theorists, then, the major function of participation is an educative one: "educative in the very widest sense, including both the psychological aspect and the gaining of practice in democratic skills and procedures" (Pateman 1970: 43). Through participation we learn how and why we participate, and we develop experience over time as to how to resolve conflict and how to reach consensus. In essence, participation opens up spaces that allow us to "learn democracy" by doing it (Schugurensky 2004). Thus, we can only become true citizens – part of a democratic polity – when all political systems have been democratised and "socialisation through participation" can take place in all areas (Pateman 1970: 43).

Participation, moreover, is the means and ends of a more equal distribution of power. Economic inequality often implies political inequality and thus the extension of democracy into the work place is an important means of addressing both inequalities. Only by doing so, Pateman (1970: 43) notes, can we extend the individual the "independence and security necessary for (equal) participation". In this sense, a polity is democratic only insofar as citizens share political and economic power equally (Bachrach 1975: 45). This does not mean that the participatory model demands radical equality, but rather that it remains committed to the idea that vast inequalities in wealth undermine the capacity of citizens to participate equally in the political sphere. In this sense, the participatory model requires a "democracy-compatible" economy (Fuller 2015), were no citizen is so poor that her political compliance can be bought, or her preferences disregarded.

Participatory democracy therefore goes beyond a "piecemeal reform of decision-making" and rather proposes a "new (or ancient)" way of looking at political life that challenges some of the foundational tenets of liberalism (Keim 1975: 27)[38]. Participation is thus the basis for "strong democracy" (Barber 1984), a state of affairs where citizens are capable of "common purpose and mutual action", not

[38] Specifically, the tenet of separating the political from the economic sphere. Recalling the five principle characteristics of liberalism, as outlined by Beetham (1992), participatory theory does not necessarily conflict with the idea of the liberal state; it asserts rather that broad-based participation in the institutions of the liberal state is required in order to approach a state of affairs that could be properly called democratic.

because of their altruistic good natures but rather by virtue of their "civic attitudes and participatory institutions" (118). Through participation and "strong democratic talk", then, conflict can be transformed into cooperation by means of a common "public language"[39] of democracy. Strong democracy is thus the antithesis of the "thin" democracy that characterises the equilibrium model.

The difference between thin and strong democracy is mirrored in the distinction made by Bookchin (1995: 220) between statecraft and politics. Statecraft is the operation of the state: its monopoly over violence, its regulatory and legal apparatuses, and its governance of society by means of legislators, armies, police forces, and bureaucracies. Conventional political parties – who control the state 'machine' by means of competing in elections – are typically top-down hierarchies that are in no sense "derivative of the body politic"[40]. Politics, on the other hand, is an organic phenomenon arising from the activity of a community, just as the process of flowering is an organic activity of a plant (221). Politics involves rational discourse, public empowerment, practical reason, and the realization of these processes through a shared and participatory activity – i.e. strong democratic talk. In this sense, the justificatory principle for the participatory model is self-rule and self-realization (Keim 1975), and the means by which to realise these principles is participation and deliberation.

As we can see, then, deliberation – or rational discourse and strong democratic talk – are important components of a participatory model of democracy. Hence, theories of deliberative democracy are close cousins to theories of participatory democracy[41]. One major difference, however, is that while participation does not necessarily need to be deliberative, deliberation does necessarily need to be participatory. In subsequent chapters of this dissertation, then, we generally speak of deliberative democracy rather than participatory democracy – primarily because we see deliberation as one of the most important components of a participatory model of democracy.

[39] Barber (1984: 178-198) lays out nine functions of talking and listening that are crucial for a strong democracy: the articulation of interests, persuasion, agenda-setting, exploring mutuality, affiliation and affection, maintaining autonomy, witness and self-expression, reformulation and reconceptualization, and community-building.

[40] As Macpherson (1977: 89) argues, proponents of the equilibrium model tend to emphasise the fact that it is market-based and thus an impartial means of equilibrating the supply and demand of political goods. What they do not seem to recognise, however, is that political parties are oligopolistic; the market for political goods is distorted by the fact that there are only a few "sellers" of political goods. Political parties can thus "set prices and set the range of goods that will be offered" (ibid). The demand schedule for political goods is thus "dictated by the suppliers" (91).

[41] Although, according to Mutz (2006), there may be an inherent contradiction between participation and deliberation in the sense that deliberation may lead to conflict which tends to *decrease* and not increase the incentive for political participation. Pateman (2012) also suggests that deliberative democracy does not fundamentally challenge existing institutions. Although greater citizen deliberation – by means of deliberative polls and the like – are a good thing, they do not engender a "participatory society" as a whole.

Although we outline deliberative democracy theory in the next chapter, we should note here that deliberative democracy is essentially about "reasoning together among equals" (Cohen 2009: 249) and is, ideally, where balance is struck between deliberation, political equality and non-tyranny (Fishkin 2002). In this sense, at the heart of deliberative theory is the assertion that public decisions are justified when they result from a process of deliberative public-reasoning from which no citizen is excluded against their will. Thus, we might see the overlap between deliberative and participatory democracy, and, moreover, how the ideals of both theories were realised in the Athenian model of democracy.

3.2.7 Pyramidal Councils

Now, to return to the problem of interrelated crises, we can see that the participatory model has much to recommend it. If these crises are indeed "wicked" problems that are best solved by iterative processes of problem-solving that include all stakeholders, then a model of democracy premised on "strong" participatory democracy seems well equipped to facilitate such processes. Indeed, the participation of all stakeholders is often cited as the best, if not the only, means of adequately resolving environmental and ecological problems[42]. Similarly, if the assumption is correct that participation facilitates social learning, then more broad-based participation may create the space to iteratively solve economic problems by both educating citizens and by enabling their preferences to be reflected in policy. Finally, of course, at the root of the political crisis – as we have outlined it – is the fact that non-elite preferences have "only a miniscule, near-zero, statistically non-significant impact upon public policy" (Gilens and Page 2014: 575). If elite preferences tend to maintain the status quo, and the status quo is environmentally and economically unsustainable, then the accounting for of non-elite preferences, by means of participation, may go some way towards solving such crises. Thus, it seems that a participatory model of democracy might be more effective in solving the interrelated crises of the 21st century then the equilibrium model.

The participatory model, however, has never been practicably realised in a modern state. According to Macpherson (1977: 99-100), two changes are required if this model is to be realised in practice: 1) a change in people's consciousness from seeing themselves as consumers to seeing themselves as "exerters and enjoyers of the exertion and development of their own capacities"; and 2) a reduction

[42] Participation is important for instantiating a moral imperative, on the part of citizens, in seeking solutions to climate change (see Ladd 1975; Markowitz 2012; Markowitz and Shariff 2012; Baatz 2014), for linking tacit knowledge to expert opinion (Wexler 1975; Prugh et al 2000; Osbeck et al 2011), for engendering positive feedback loops that reinforce adaptive behaviour (Berners-Lee and Clark 213; Orr 2009), and for involving citizens directly in environmental projects through participatory or community budgeting (Cabannes 2004; Novy and Leubolt 2005; Wampler 2007; UK Government 2014; Barnett 2015).

in social and economic inequality. Hence a vicious circle arises: "we cannot achieve more democratic participation without a prior change in social inequality and in consciousness, but we cannot achieve the changes in social inequality and consciousness without a prior increase in democratic participation" (100).

While Macpherson suggests that recent trends might indicate the existence of "loopholes"[43] in this vicious circle, these trends – almost forty years after his thoughts were published – have so far not resulted in a transition from an equilibrium model to a participatory model. Be this as it may, Macpherson examines how a participatory model of democracy might work in practice. He suggests a "pyramidal councils" system, the outline of which is worth citing at some length (108-9):

> *"The simplest model that could properly be called a participatory democracy would be a pyramidal system with direct democracy at the base and delegative democracy at every level above that. Thus one could start with direct democracy at the neighbourhood or factory level – actual face-to-face discussion and decision by consensus or majority, and election of delegates who would make up a council at the next more inclusive level, say a city borough or ward or township. The delegates would have to be sufficiently instructed by and accountable to those who elected them to make decisions at the council level reasonably democratic. So it would go on up to the top level, which would be a national council for matters of national concern, and local and regional councils for matters of less than national concern…What is needed, at every stage, to make the system democratic, is that the decision-makers and issue-formulators elected from below be held responsible to those below by being subject to re-election or even recall".*

So, the essence of the pyramidal council system is a process where citizens – at the level primarily of the workplace and neighbourhood – organise into groups, discuss their preferences, and then elect delegates to represent those preferences in councils at a higher level. This process would, ostensibly, repeat itself until citizens at the base of the pyramid were represented by a single council at the top of the pyramid. We might immediately see how a pyramidal council system might help to realise the first, second, and eighth conditions of polyarchy: by structuring citizens into groups and connecting those groups into pyramids, it becomes more feasible for citizens to suggest alternatives and to distribute information relates to the costs and benefits of those alternatives. Moreover, a pyramidal

[43] These loopholes are: 1) people are beginning to realise the costs – in quality of life – of the untrammelled pursuit of economic growth; 2) a trend towards more democratic participation in the workplace; and 3) over time the contradiction of capitalism – that it generates increasing inequalities – will become more and more apparent.

system might allow for elections to be 'continuous' because citizens could utilise the pyramidal structure to channel their preferences and concerns directly to decision-makers; i.e. there would not be one elected official and a multitude of voters, but rather a structure of intermediary representatives that connected each citizen – in a clear sequence of links – to the ultimate decision-maker. Thus, we might see how the pyramidal system might reconcile participation with polyarchy and thus better realise the democratic ideal.

Although this pyramidal council system has been referenced in the literature[44], it has never been, to our knowledge, realised fully in practice. The key reason for this, of course, is due to the perennial problems of scale and economy. As Oscar Wilde quipped: "The problem with socialism" – or, for our purposes, a pyramidal council system – is that "it would take too many evenings". Thus, the reason why a pyramidal council system has never before been implemented is that it is simply not feasible to do so in a large modern state.

Hence, the key premise of this dissertation: that recent advances in information communication technology (ICT) now make it possible to implement a pyramidal council system of participatory democracy. As we see in subsequent chapters, ICT makes it feasible for citizens to be organised by means of pyramidal structures. Moreover, such structures could form at any scale; i.e. the iterative council system could be deployed in a factory, a neighbourhood, a town, a city, a country, or even at the level of the globe as a whole, and thus comprise almost all global citizens. If this is feasible, and if the assumptions of participatory theory are correct, then a pyramidal council system enabled by ICT may, in turn, facilitate the development of global collaborative networks empowered to respond to the interrelated crises of the 21st century. It is to the feasibility and desirability of such a project that the subsequent chapters in this dissertation now turn.

3.3 Conclusion

In the previous chapter, we laid a foundation for our argument by suggesting that broad-based stakeholder engagement would be necessary for solving the interrelated crises of the 21st century. In this chapter we have evaluated the dominant model of democracy – the equilibrium model – in order

[44] Prior to Macpherson, see Harrington (1659) and Arendt (1973). After Macpherson, see Teorell (1999) who considers pyramidal structures in reference to instantiating intra-party deliberative democracy, Wolfe (1985) and Hilmer (2010) on the potential of participatory democracy, Muhr (2013) who briefly considers pyramidal councils in Nicaragua, and Aragones and Sánchez-Pagés (2009) and Abers (1996) who investigate pyramidal structures in relation to participatory budgeting processes in Brazil. Only Pivato (2007, 2009) provides a systematic account – from primarily a mathematical game-theoretic perspective – on the feasibility of a pyramidal council system.

to determine whether it might engender such stakeholder engagement. We find that this is unlikely. Because the model is premised on limited participation – and because it engenders several severe problems related to cartelisation, weak multilateralism, self-referential thinking, policy drift, and elite capture – the model seems inherently incapable of engendering global collaborative networks of citizens who were empowered to formulate and deploy solutions to the interrelated crises.

On the other hand, the participatory model is premised on broad-based participation, critical argument, deliberation, social learning, equality, and citizen empowerment. It thus seems the more appropriate of the two models. The pyramidal council system, moreover, provides a recipe by which to reconcile the participatory model with polyarchy; i.e. how to realise the participatory and democratic ideal whilst remaining – mostly – true to the five foundational tenets of liberalism. If ICT can make the pyramidal system realisable in practice, therefore, then we might have a recipe by which to generate the requisite political will for resolving the interrelated crises of the 21st century.

It is noteworthy that the equilibrium model is similar to the political system prevalent in ancient Rome (Fuller 2015: 252). In Rome, too, opportunities for citizen participation were few, and, so, whoever held office held a great deal of power. Hence, the entire social hierarchy was geared towards one event – the election. The wealthier and more powerful the individual, the more likely they were to win elections and thus accumulate more wealth and power. This made competition fierce and gave it a hereditary dimension, with certain families born into the ruling class by virtue of the past accumulation of wealth and power. Fuller (2015: 268) argues that the US federalist system is modelled explicitly on the Roman system, right down to the "architecture, the eagle and the name of its highest political body – the Senate".

If the fate of ancient Rome harbingers the possible endpoint of societies premised on the equilibrium model, then ancient Athens sets a precedent for the instantiation of broad-based citizen participation in public affairs and policy making. If the pyramidal council system can be realised by means of ICT, then it may become possible to realise aspects of the Athenian model at the scale of the modern nation-state. It is to this possibility that we now turn.

4. Deliberative Democracy and Digital Deliberation

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4.1 Introduction

In the previous chapters we suggested, first, that global collaborative networks are necessary for resolving the interrelated crises of the 21st century, and, second, that a participatory model of democracy was thus more appropriate than an equilibrium model for effectuating such networks. Moreover, we noted that the participatory model might be reconciled with the tenets of liberalism if the eight conditions of polyarchy were more fully realised by means of a pyramidal council system. Thus, we concluded that, if ICT were to enable a pyramidal system, then it may be feasible to resolve the interrelated crises by means of an ICT-facilitated model of participatory democracy.

Our objective in this chapter is to lay the foundation for how that ICT-facilitated model might work. We should note that we are not dealing directly with the pyramidal structure yet. Instead, we are laying the foundation for the feasibility of realising the constituent *elements* of that structure – small groups of citizens meaningfully deliberating by means of computer-mediated environments. The constituent element is thus a digital deliberative microcosm of the citizenry – a group of roughly ten citizens deliberating online by means of a *bespoke application*; i.e. a custom-designed computer application that would enable the formation of groups and the process of deliberation. In the following

chapter we outline how these groups are connected together by means of pyramidal structures. We thus proceed in four parts.

First, we outline the fundamentals of deliberative democracy – the theory at the core of our participatory model of democracy. We note that deliberative democracy entails five key functions: deliberation, public reasoning, political equality, non-tyranny, and epistemic outcomes. The key idea here is that deliberative democracy is about a process of public reasoning among equals that does not result in tyranny. Moreover, we define deliberation in terms of the framing of problems and the deliberative development of potential solutions. We also note that deliberation can be more or less *complete* depending on the extent to which citizens remain civil and respond appropriately to the public reasoning of their peers.

Second, we evaluate the empirical evidence that supports the idea that deliberation among citizens does, indeed, entail the five key functions. We find strong evidence in support of this contention for face-to-face deliberation in controlled environments.

Third, and given that there is somewhat mixed evidence for the efficacy of computer-mediated deliberation in uncontrolled environments, we investigate the design criteria that would lead to *more complete* deliberation in online spaces. The key idea here is that the design of the online environment is the primary predictor of whether or not the deliberative functions are meaningfully realised. We also outline more fully, here, the idea of a bespoke application that would incorporate the design criteria that might enable more complete deliberation. In other words, we outline the functionality that would be required if we wanted to citizens to meaningfully deliberate in an online space. We should note that these design criteria do not tell us *how* mass engagement is reconciled with deliberation, but only what an online deliberative space would require in order to engender more complete deliberation. The criteria are thus necessary but not sufficient.

Fourth, we outline the technological feasibility of developing our bespoke application. The key idea here is that the broad-based adoption of messenger applications, the broad-based adoption of smartphones, and the broad-based penetration of internet access, suggest the feasibility of deploying a bespoke application designed to reconcile mass engagement with deliberative democracy. Although problems related to the 'digital divide' are important, they do not invalidate our claims to feasibility.

Thus, by the end of this chapter we should have an idea of the feasibility of deploying a bespoke application that would enable a small group of citizens to meaningfully deliberate in an online environment. In the following chapter we outline how these small groups might be connected

together in order to reconcile deliberative democracy with mass engagement, and, thus, how global collaborative networks might be formed.

4.2 Deliberative Theory

The idea of deliberative democracy goes back to an Athenian ideal of democracy. As Fishkin (1991, 2002, 2009) notes, the Athenians faced the same problem as do modern democracies: they could not gather together all citizens in the same place, despite the relatively small size of the population. However, by means of drawing lots, they were able to assemble groups that were representative of the entire citizenry and achieve an effective form of deliberative and participatory democracy. Moreover, the concept of *isegoria* – equality of all in freedom of speech – was at the heart of Athenian democracy; the freedom of everyone to speak and the obligation of all to debate and deliberate over the course of public affairs were both inseparable and non-negotiable aspects of life as an Athenian citizen. Our treatment of Athenian democracy, in the previous chapter, thus sets the scene for our examination of deliberative theory here.

For our purposes, however, we are interested specifically in the functions that deliberation might perform in our ICT-facilitated model of participatory democracy, and specifically how those functions might help to resolve the interrelated crises of the 21st century. We can identify five such functions or aspects at the core of deliberative theory: deliberation, public reasoning, political equality, non-tyranny, and epistemic outcomes.

4.2.1 Deliberation

When we generally talk about deliberation we mean long and careful consideration of ideas or options by means of discussion, debate, information-sharing, evaluation, and reflection. We can therefore define deliberation as "weighing the reasons relevant to a decision with a view to making a decision on the basis of that weighting"[45] (Cohen 2009: 249). Deliberation, then, requires a set of "self-governing capacities" (Bohman 1996: 7) – understanding, imagining, valuing, desiring, storytelling, and arguing. But there is not, necessarily, a single 'correct' way to deliberate; different groups may have different standards for what they consider meaningful deliberation. As Mouffe (2000) argues, deliberation is potentially dangerous if it is used to exclude those who are considered 'unreasonable'. Our key requirement for successful deliberation, however, is that it is constituted by a process of

[45] Cohen notes that oligarchs might deliberate and thus deliberation, in and of itself, is not necessarily democratic.

'public reasoning' – that citizens "address one another with their public reasons in the give and take of free and open dialogue" (Bohman 1996: 7).

There are at least three virtues of deliberation that make it, arguably, inseparable from a full conception of democracy (Cohen 2009: 252). First, under ideal circumstance, deliberation would be the standard by which we would accept collective decisions; i.e. when deliberation occurs successfully, then we feel that our position has been heard and considered, even if the eventual decision aligns poorly with our preferences. Deliberation, in this sense, promotes a conceptualisation and practice of justice.

Second, Cohen argues that "reason-giving" is a "distinctive form of communication" that may have desirable consequences apart from the promotion of justice. When we are forced to defend our position, for example, we are forced to provide reasons that can be understood by others. This process can tease out new information – via discussion with our interlocutors – that may help to change or modify our position. In this way, even though an individual might begin deliberating with their own specific interests in mind, they may complete those deliberations with a moderated set of interests that include the perspectives and interests of others. Argument as a form of communication, therefore, may have desirable consequences apart from the promotion of justice.

Third, Cohen notes that reasonable people may give different weight to different arguments and, thus, reasonably disagree. When citizens are part of the deliberative process and feel that their positions have been equally weighed, then political decisions are not "simply a product of power and interest" but rather of deliberation among equals (253). Thus, deliberation expresses the idea that democracy is about relations among equals.

Although all these virtues of deliberation are important, we are particularly interested in deliberation about potential solutions to political, economic and environmental problems. We can thus turn to Gastil (2000: 22, cited in Delli Carpini, Cook and Jacobs 2004: 317), for a more solutions-orientated definition of deliberation:

> *"Following the writings of John Dewey, full deliberation includes a careful examination of a problem or issue, the identification of possible solutions, the establishment or reaffirmation of evaluative criteria, and the use of these criteria in identifying an optimal solution. Within a specific policy debate or in the context of an election,*

> *deliberation sometimes starts with a given set of solutions, but it always involves problem analysis, criteria specification, and evaluation"*[46]

We can immediately see here the link between this solutions-orientated definition and the iterative processes of critical argument, deliberation, problem-framing and solution-testing that we have claimed is necessary for the resolution of the interrelated crises of the 21st century. Thus: 1) if deliberation is indeed a "distinctive form of communication" (Cohen 2009: 252) that enables citizens to reason together as equals; and 2) if we can facilitate broad-based deliberative participation by means of ICT; and 3) if those deliberations can focus on framing problems and identifying solutions; then 4) it follows that we might be able to solve crises by means of iterative deliberation amongst stakeholders. We can thus see why deliberation is important for our model of participatory democracy.

While the aforementioned solutions-orientated definition of deliberation is comprehensive, we – along with Delli Carpini, Cook and Jacobs – would temper it with a conception of completeness and incompleteness (Fishkin 1997). In this sense, communication and debate is *less complete* and *less deliberative*, the more that questions go unanswered, the more that assertions remain unacknowledged, the more that some participants are unwilling to weigh all the claims and evidence, and the more that pertinent information and facts are not easily at hand.

Thus, despite the fact that deliberation increases the "argument repertoire"[47] of participants – the ability to make and to understand arguments – it does not immediately follow that the participants in a discussion would deliberate with completeness, i.e. remain polite, respond to questions, reach agreement, or modify their positions in the face of contradictory evidence. Thus, if we did design an environment in which ideal speech[48] – and thus ideal deliberation – were feasible, this would not necessarily ensure the *completeness* of the deliberative process. We return later to the idea of completeness and incompleteness in deliberation when we consider the design criteria for a bespoke application designed to facilitate digital deliberation.

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[46] Consider also Anderson (2012: 13) who writes that Dewey conceives of deliberation as a kind of thought experiment, in which we "rehearse proposed solutions to problems in imagination, trying to foresee the consequences of implementing them, including our favorable or unfavorable reactions to them".

[47] The argument here is that exposure to disagreement by means of deliberation teaches participants to: 1) formulate reasons for their own positions; 2) explain those reasons to others; and 3) explain why others disagree with their position (Cappella, Price and Nir 2002; Price, Cappella and Nir 2002).

[48] After Habermas (1990), an ideal speech situation is when 1) everyone with the competence to speak has the opportunity to do so; 2) everyone is able to question any assertion; 3) anybody is able to introduce any assertion into the conversation; 4) everybody is able to express their desires, attitudes and needs without hesitation; and 5) nobody is prevented, by internal or external coercion, from exercising their rights as laid down in conditions 1-4.

To sum up, then, deliberation is about a process of public reasoning among equals. It is a distinctive form of communication that promotes conceptions of justice, reveals new information, and moderates interests and preferences. If we employ a solutions-orientated definition of deliberation, then we see, moreover, that deliberation is about examining problems and identifying optimum solutions. Deliberation, however, can be more or less complete depending on the extent to which participants acknowledge and respond to each other's arguments.

4.2.2 Public Reasoning

We have already noted that deliberation entails a process of public reasoning. We can further elaborate on this idea by noting that public reason is neither about truth nor consent but rather that our "moral or political principles be justifiable to, or reasonably acceptable to, all those persons to whom the principles are meant to apply" (Quong 2013: 2). The role of deliberation is thus not necessarily to find 'truth' or the objectively 'best' outcome. Nor is it to generate consent for one option over another. Public reasoning is fulfilled, rather, when each participant tries to explain, without artifice or evasion, why they think one option is better than another. They are not required to be 'right' in any objective or scientific sense and we are not required to be convinced by their reasons, even if they are 'right' in some way. The requirement instead is that their reasoning be public because the issue under debate is in some way related to the common good; i.e. the policy or option under consideration will impact all involved and thus all are entitled to hear the reasoning that supports the proposed option or policy. At the core of deliberative theory is this commitment to public reason, that legitimate decisions are, according to Hicks (2002: 241), supported

> *"…by reasons that all governed by those decisions can accept without having to negate their deeply held beliefs and values, or at least by reasons they cannot reasonably reject, because such rejection would entail forcing others to sacrifice their convictions"*

We can identify two broad requirements for public reason (Rawls 1989): evidence for claims, and the virtues that should guide political judgement. In short, evidence should be publicly available to all, should not fundamentally contradict the claims of the best evidence available (scientific or otherwise), and, if claims are not immediately verifiable, then they should at least be plausible. In terms of political judgement, the key virtue is political reasonableness. Citizens are reasonable when they are willing to cooperate with one another in "proposing fair terms of social cooperation and have the commitment to act on those terms" (Hicks 2002: 242) even if doing so means that they do not necessarily always get their way. An important implication of reasonableness is that citizens do not use their power to repress others, unless they were using their power to constrain those who were *already* repressing others.

This idea of public reason is thus concomitant to the assumption that there always will be "deep and intractable disagreement amongst some people" and that this disagreement is not due to irrationality, prejudice or self-interest but rather a natural function of pluralistic human reasoning under reasonably favourable conditions (Quong 2013: 2). Public reasoning is not about finding truth, it is about publicly explicating truths as they are conceived by the individual (Hicks 2002: 243). Although Rawls suggests requirements for evidence and political judgement, this should not imply that we need perfect or hyperrational[49] Habermasian ideal speech in order for public reasoning to take place. Along with Gaus (2010) we might acknowledge simply that public reasoning is something that results from the evolutionary development of social norms and the path-dependent application of those norms. In other words, those social norms that constitute public reasoning today have developed because they have made cooperative life possible in the past. Thus, public reasoning needs neither to be hyperrational nor truth-seeking; it just needs to be public, inclusive, and premised on some broad agreement of reasonableness.

4.2.3 Political Equality

For deliberation to be truly democratic, however, each participant must also enjoy some measure of political equality – i.e. we must not only give "equal consideration to everyone's views" (Cohen 2009: 249) but differences in rhetorical ability, wealth, appearances, etc should not unduly privilege one participant over another. Achieving political equality in deliberative democracy is a perennial problem, and we can identify three core criticisms that suggest it is not possible to achieve such equality (Knight and Johnson 1997; Cohen 2009;): 1) due to inequalities in rhetorical ability and intelligence; 2) due to inequalities in time and resources that privilege some participants over others; and 3) inequalities in the ability of some participants to influence the implementation of policies that arise from deliberation. Our model of ICT-facilitated participatory democracy would thus need to resolve, or at least respond adequately, to these problems. In the next chapter, after we have fully outlined our model, we return to the problem of political equality and suggest how they can be resolved. For the time being, we should simply acknowledge that the less equal participants to deliberation are, the less efficacious the deliberative outcome might be.

[49] Consider, for example, Habermas's definition of rational discourse (1975: 107-8): "a form of communication that is removed from contexts of experience and actions whose structure assures us: that the bracketed validity claims of assertions, recommendations, or warnings are the exclusive object of discussion; that participants, themes, and contributions are not restricted except with reference to the goal of testing the validity claims in question; that no force except that of the better argument is exercised; and that, as a result, all motives except that of the cooperative search for truth is excluded".

4.2.4 Non-Tyranny

Finally, even if deliberation is complete and participants enjoy political equality, the outcome to deliberation should avoid tyranny – i.e. outcomes should not impose "severe deprivations of essential interests" on a minority when some alternative policy might have been chosen that would not have done so (Fishkin 2002: 226-7). Deliberative democrats attempt to respond to this problem by stressing the educative function of deliberation; that deliberation, under ideal circumstance, should instantiate political equality rather than undermine it. Hence, Gutmann (2007: 417) notes that deliberative democracy attempts to integrate the populist emphasis on majority will with the liberal emphasis on personal freedom (Gutmann 2007: 417). Ideally, then, deliberative democracy would harness majority rule in order to "express and support the autonomy of all persons" rather than undermine it.

While this may be more or less true in practice so far, deliberative democracy has never before been successfully married with mass engagement. Moreover, the outcomes derived from a process of mass deliberation have never led directly to the implementation of policy; the implementation of which would be more likely the greater the number of citizens who engaged in the deliberative process. Thus, if we can facilitate relatively complete and inclusive deliberation by means of ICT, then we may open Pandora's box by legitimising a permanent tyranny of the majority. Once we have fully outlined our model of democracy in this chapter, we return to this problem in the next.

4.2.5 Epistemic Outcomes

The epistemic function of deliberation is to produce preferences and opinions that are logically coherent and informed by meaningful consideration of all the relevant facts (Mansbridge et al 2012). We have already noted that this is one of the outcomes of deliberation itself; the revealing of new information by participants which may have some bearing on the ideas of preferences of participants. A fuller conception of the epistemic function of deliberation, however, goes much further than the simple revealing of new information.

The claim, in an epistemic conception of deliberation, is that the decisions made by means of deliberation are *better* than those made under a different procedure (panels of experts, for example) – i.e. *better* in the sense of prone to being more accurate approximations of what the correct decision should be. Although there are strong normative overtones[50] here – of better in the sense of morally optimum – the epistemic conception is more a case of acknowledging that, if deliberation itself is a

[50] There is also a related claim here, see Cohen (1986), that the epistemic function of deliberation is to assist in the formulation of the "general will" – a rather blurry concept, at least since Rousseau. We return to this idea in the following chapter when we deal with problems of consensus and majority rule.

process of reason-giving and reason-weighing, than we can expect broad-based deliberation to result in some level of optimality with regards to finding the best reasons for doing or not doing something[51]. Anderson (2006) provides us with an overview of three epistemic models of democracy that can help to clarify this point: the Condorcet Jury Theorem, the Diversity Trumps Ability Theorem, and Dewey's experimentalist model.

The Condorcet Jury Theorem is premised on the idea that, if individuals in general have a better than 50% chance of arriving at a correct decision, then the more individuals who participate in any given process of decision-making, the greater the probability of the correct decision being selected – this probability approaching 100% for an infinite number of participants[52]. The implication for deliberative democracy is that the more participants we include – and if we are reasonably sure that they are generally capable of making a good decision rather than a bad one – than we can justify deliberative democracy on the basis that it is more likely to result in *good* outcomes. As Anderson (2006: 11) notes, the theorem does not provide a "particularly illuminating" account of epistemic democracy, but we should immediately see how this epistemic function might play out with regards to an ICT-facilitated model of deliberative democracy: if ICT can reconcile mass engagement with deliberation, then – according to the Condorcet Jury Theorem – better outcomes might be the result.

The Diversity Trumps Ability Theorem states that (Anderson 2006: 12, drawing on Hong and Page 2004 and Page 2008): 1) if a problem is hard (not all individuals can solve the problem); and 2) groups of problem-solvers tend to converge on a set of finite solutions; and 3) the problem-solvers are epistemologically diverse (and thus do not converge on the same solutions); and 4) there are many problem-solvers who work together in moderately-sized groups; then 5) a "randomly selected collection of problem solvers outperforms a collection of the best problem solvers". The argument here is that the "wisdom of crowds" (Surowiecki 2004) can outperform experts. Again, we can see that, if ICT can facilitate this kind of problem-solving, then we might expect deliberation to result in better outcomes.

Finally, Dewey's experimental model incorporates the basic assumptions of the two previous theorems – that a diversity of opinions leads to better epistemic outcomes – but reconciles them directly with the democratic ideal. For Dewey, as Anderson (2006: 13) notes, democracy is the "use of

[51] We should acknowledge here that deliberative democrats often distinguish between procedural and substantial justifications (or fair/epistemic, or intrinsic/instrumentalist) for deliberative democracy. We would agree with Martí (2006), who provides an extensive analysis of this distinction in the literature, that there is essentially no dilemma between the two justifications.

[52] The theorem also implies, however, that if individuals generally have a less than 50% chance of making the correct decision, then the chances of the correct decision ultimately being selected will approach zero the greater the number of individuals participating.

social intelligence to solve problems of practical interest". In this sense, then, democratic decision-making is the joint exercise among citizens at large of "practical intelligence" – applying the scientific method to practical problems. This kind of decision-making, when undertaken in interaction with elected representatives and state officials, is the "cooperative social experimentation" that is the ideal function of democracy. It is this third model of epistemic democracy – although we incorporate elements of the preceding two – that is at the heart of our model of an ICT-facilitated form of deliberative democracy. We develop this assertion further over the course of this chapter.

In conclusion, then, we have outlined in this subsection the core functions or aspects of deliberative theory: deliberation, political equality, non-tyranny and epistemic outcomes. There is, as Fishkin (2002: 225) argues, "strong normative appeal" and clear reasons for preferring a vision of democracy that successfully achieves deliberation, political equality and non-tyranny. If such a form of democracy also leads to epistemologically 'better' outcomes, then all the better. For our purposes, both the normative and epistemological aspects of deliberation are important because both form the basis for a Deweyan process of cooperative social experimentation that, we argue, is important for resolving the interrelated crises of the 21st century and, in doing so, facilitating a transition towards post-scarcity. Be this as it may, if we are to make a case for how ICT can reconcile mass engagement with deliberation, we must first examine whether the claims made about the substantive and procedural benefits of deliberation are borne out by the empirical evidence.

4.3 Empirical Evidence

Perhaps the best example – the "gold standard" (Mansbridge 2010) – of empirical studies regarding deliberation is James Fishkin's (1991, 1996, 2003) experiments with deliberative polling. A deliberative poll is where a representative sample of randomly-selected citizens engage, within small groups, in face-to-face deliberation about an issue or about a proposed policy. Participants often complete surveys or questionnaires both before and after the deliberative process and may receive information brochures that have been carefully designed to impartially present all sides of the issue. In addition, participants might listen to presentations by different experts, with the opportunity to ask questions afterwards. After listening to presentations or reading informational material, participants then break into small groups and deliberate for a day or more. At the end of the process, completed questionnaires give an indication of how opinions and preferences shift due to the deliberative process.

In terms of representing the broader public, Fishkin (1991: 1) notes that a deliberative opinion poll "models what the public would think, if it had a more adequate chance to think about the questions

at issue". By means of deliberation, participants tend to gain empathy and mutual understanding (Fishkin and Lushkin 1999), improve their knowledge of the issue (Fishkin and Lushkin 1999), delineate their preferences into clear groupings (List et al 2012), and to make choices between different public works projects based on common interests (Fishkin et al 2010). Overall, then, it seems that citizens emerge from deliberation, on average, looking "*more* like ideal citizens than they did beforehand" (Luskin et al 2002: 484, authors' italics). Similar positive results have been reported for deliberative experiments based on similar techniques: deliberative community dialogues (Weeks 2000), consensus conferences (Joss and Durant 1995; Andersen and Jaeger 1999), mini-publics (Niemeyer 2013), and citizen juries (Crosby 1995; Coote and Lenaghan 1997; Smith and Wales 2000). Citizen engagement and deliberation in these formats, however, is seldom cheap and is not always guaranteed to be effective (Irvin and Stansbury 2004; Canfield et al 2015).

The deliberative poll – and other similar techniques – are thus the means by which deliberative theorists solve the problem of scale. Because the whole of a society cannot engage in deliberation, representativity is achieved by means of creating a "mini-public" or "citizen panel" or "deliberative microcosm" (Fung 2003; Goodin and Dryzek 2006; Fishkin 2011), a group small enough to be genuinely deliberative but large enough to be genuinely democratic (Brown 2006).[53]

Overall, then, the empirical evidence seems to support the contention that deliberation – especially face-to-face deliberation – engenders the beneficial outcomes that deliberative theory expects it to. Deliberative polls, and similar experiments, however often take place under ideal laboratory conditions. For our purposes we are interested in the feasibility of replicating the process of the deliberative poll – and the benefits of deliberation suggested by the empirical evidence – in an online environment. In what follows, we review the empirical evidence related to online deliberation *in order to* ascertain a list of design criteria for a bespoke application that would enable us to create an online space that would promote more complete deliberation.

4.4 Digital Deliberation

4.4.1 Design Criteria for a Bespoke Application

In this subsection we outline a list of design criteria for a bespoke application designed specifically to facilitate online deliberation within a group of approximately ten participants. As we see in the

[53] To foreshadow our upcoming argument, a key aspect of our model of ICT-facilitated deliberative democracy is the division citizens into a multitude of deliberative microcosms and then structuring those microcosms in pyramidal formations, so that the deliberations at the base of the pyramid iteratively feed into the deliberations of microcosms at higher tiers in the pyramid.

following section, our model of participatory democracy is premised on organising citizens into a pyramidal structure comprising 'nodes' aligned across the various tiers of a pyramidal structure. What is important, right now, is that each node can be considered a deliberative microcosm in its own right: each comprising a group of citizens who frame problems and then deliberate, argue, and weigh evidence so as to develop potential solutions. In our model, this deliberative process is facilitated by means of a bespoke mobile application, not dissimilar to a messenger application[54], but with a host of unique features designed to enable more complete deliberation.

It is noteworthy, before we examine the specific design criteria for our bespoke application, that studies which have replicated face-to-face deliberative polls in an online environment – using the same briefing materials, and run over the same time, etc – find that the two methods produce similar effects, although the effects are smaller online than they are face-to-face (Iyengar, Fishkin and Luskin 2003; Gronlund, Strandberg and Himmelroos 2009). In unstructured online spaces – like blogs and social networks – results can be mixed. Although positive aspects of deliberation are present, several problems have been identified: participants do not always come to rational agreement, debates can be dominated by a few participants, discussion can occur in so-called "echo chambers"[55], and participants sometimes exhibit confirmation bias (Mummery and Rodan 2013; Colleoni et al 2014; Williams et al 2015; Quinlan, Shepard and Paterson 2015; Collins and Nerlich 2015; Karlsen et al 2017).

Wright and Street (2007) argue convincingly, however, that whether online discussion thwarts or facilitates deliberation is a function of the design – the format and operation – of the online system itself. In this sense, we are not necessarily looking in the right places and asking the right questions if we examine online deliberation as it exists now. Rather than looking at Twitter, Facebook, and the blogosphere in the hopes of determining whether online deliberation is feasible, we need to ascertain a set of design features that would incentivise participants to better approximate more complete rather than less complete deliberation.

[54] Messenger applications (apps) for mobile devices provide a similar service to that of SMSs (Short Messaging System) but send information via the internet rather than via the mobile network operator. Messenger apps also have additional functions: 1) they allow for the creation of groups wherein multiple users can view a "thread" of all the messages sent by each member in the group; and 2) messages can contain not only text, but also pictures, videos, voice recordings, documents, and hypertext links. For our current purposes, then, we can image our bespoke application as similar to a messenger app, like WhatsApp, WeChat or Telegram, but with certain bespoke features specifically designed for facilitating deliberation. Each deliberative microcosm, then, would be similar to a messenger app group of 10 or so users.

[55] Sunstein (2001) warns that the internet could have a polarizing effect, with individuals walling themselves off from one another, or fragmenting into self-contained enclaves (Dahlberg 2007). When people selectively avoid opposing arguments and evidence in deliberative forums – seeking instead to reinforce their original position by engaging only with like-minded individuals – then "echo chambers" result (Sunstein 2001; Jamieson and Cappella 2008). Although echo chambers certainly do exist, recent evidence suggests that the problem is less serious than originally thought (Robson 2018).

Friess and Eilders (2015) have undertaken a systematic review of online deliberation research. As such, they outline various categories of design choice that affect the success of deliberation[56]: mode of communication, anonymity/identity, moderation, information, and reputation/gamification. By examining the empirical findings in relation to these design choices we can, thereby, determine the optimum design choices for our own bespoke application.

Mode of Communication: The primary choice here is between synchronous and asynchronous communication, whether or not participants are communicating in real-time. The consensus in the literature is that synchronous communication leads to triviality or argumentative decoherence while asynchronous communication may promote more thoughtful consideration and reduce barriers to participation (Janssen and Kies 2005; Stromer-Galley and Martinson 2009; Davies et al 2009).

In our bespoke model, we can have the best of both worlds. Similar to a messenger app, participants should be able to communicate both synchronously and asynchronously. When two or more participants are online, they can communicate in real-time, when not, participants can communicate intermittently, perhaps engaging only for a few minutes to post a summary of their consolidated position in the debate, or to respond to a new piece of information, or to rebut a criticism, etc. In this sense, then, the mode of communication we envisage is primarily text-based and occurring both synchronously and asynchronously.

Anonymity/Identity: Friess and Eilders (2015: 326) note that the question of whether anonymity or identification better fosters deliberation is a point of controversy in the literature. While anonymity may increase participation by lowering barriers to entry, reducing inhibitions, and fostering group identity, it is also asserted that identification promotes more rational, sincere and civil deliberation (Janssen and Kies 2005; Leshed 2009; Coleman and Moss 2012; Towne and Herbsleb 2012; Halpern and Gibbs 2013; Bae 2016).

In our bespoke model, we might be able to both have our cake and eat it too. To this end, we suggest a pseudonymous model where participants are required to link their online identities to their real-world identities but can then use one or more pseudonyms when participating in deliberation[57].

[56] We have adapted these categories slightly by merging some and adding others but rely in many cases on Fries and Eilder's (2015) review of the underlying source material.

[57] As Moore (2018: 175) outlines, when evaluating the links between identification and deliberation, we can "disaggregate anonymity" into three dimensions: traceability, durability, and connectedness. Traceability speaks to the ease with which third-parties – advertisers or government agencies – can link an online identity with a real-world identity. Durability speaks to the "ease or difficulty with which online identities can be acquired or changed" (176). Connectedness speaks to the connections or bridges between an identity over different digital platforms or contexts. For our purposes, we want pseudonyms to be relatively durable, so that the reputation of individual participants can be tracked across different deliberative spaces. We would also want to allow users to avoid traceability under certain circumstances – criticising governments, for example.

Rather surprisingly the empirical evidence suggests that pseudonymity leads to better reason-giving and civility than do either anonymity or real-world identification (Fredheim and Moore 2015; Disqus 2018). Blockchain technologies – which we discussed in the previous chapter – provide an ideal means of securely linking real-world identities with pseudonymity and anonymity[58].

Moderation: Perhaps unsurprisingly, the empirical evidence suggests that "moderation can have significant positive effects on the deliberative quality of online debates" (Friess and Eilders 2015: 326) – when moderation is understood as interactive and mediatory rather than in the sense of censorship. Interactive moderation increases participation, promotes better argument, teases out more information, and allows minority views to be heard (Janssen and Kies 2005; Wise, Hamman, and Thorson 2006; Wright 2009). Moderation is thus "crucial to enable respectful, rational, and inclusive online deliberation" (Friess and Eilders 2015: 327).

In our model of ICT-facilitated deliberative democracy, however, citizens self-organise into deliberative groups. Discussion and deliberation therefore do not originate from 'above' and thus there can be no 'institutional' moderator in our deliberative spaces. What we can do, however, is include in our design criteria a system for incentivising participants to assume different *roles* across one or more deliberative space. In this sense, within each deliberative microcosm comprising roughly ten participants, one of them might choose or be assigned to moderate the debate, in the same way that a head juror or jury foreman facilitates jury deliberation. By linking the role of moderation with reputation, as we will soon see, we might also incentivise participants to take the job of moderation seriously.

Information: Since meaningful deliberation relies on weighing different arguments and different options, the quality of the information that informs that process is paramount. Better and more diverse information is key to understanding complex issues, creating 'mental models' that facilitate clear communication, and developing rational solutions (Towne and Herbsleb 2012; Gudowsky and Bechthold 2013).

Because deliberation in our model occurs in a bottom-up manner, there can be no impartial packet of information provided for every topic. Although participants could simply provide their own

Third, we might also want to allow participants to become completely anonymous in certain deliberative spaces; as anonymous online culture or 'A-culture' (Auerbach 2015) can create playful environments that have qualities different to more formal spaces. All three of these possibilities should be available in our bespoke application, with, as we see later in this chapter, different deliberative forums requiring different levels of identification.

[58] This is particularly important, as we see in Chapter 8, for linking participatory budgeting to the deliberative process. Moreover, the ability to disaggregate identities and prevent traceability is important for protecting citizens against authoritarian regimes.

information – by providing links to relevant sources[59] – it might be more productive for some participants to assume an official role as researcher. In this sense, just like we might incentivise participants to assume the role of moderator, we might also incentivise participants to take on the role of compiling a 'dossier' on the problem at hand[60]. Clearly some people may enjoy undertaking this kind of role, hence the importance – in stimulating deliberation – in allowing participants to choose the tasks that relate to their area of interest or expertise (Towne and Herbsleb 2012). There is thus the potential, within every deliberative microcosm, for the voluntary division of labour and thus for "atomizing" complex issues into a series of manageable tasks (Friess and Elders 2015: 327).

Reputation/Gamification: In order to consolidate the design criteria of pseudonymity, moderation, and information, we could include a criterion for a reputation or "collaborative sanctioning" system (Jøsang, Ismail and Boyd 2007). Such a system would allow users to rate one another from time to time such that the aggregated ratings of an individual could be used in the future to assist others in determining whether or not a user is trustworthy[61]. In this sense, then, enabling users to rate one another on deliberative performance – politeness, responsiveness, candour – would generate an incentive to conform more closely to social norms[62] associated with ideal speech. Reputation would also be a means by which to incentivise participants to take on specialised roles like moderator or researcher.

Gamification is the "use of game design elements in non-game contexts" (Deterding et al 2011). It is thus not about games per se, but rather about adapting the motivators we find in games, particularly

[59] Indeed, Himelboim (2009) finds that 95% of users who attract the most comments in online political forums are those who post links to external sources of information. This indicates, then, a relationship between "information supply and replies, which touches on the deliberative dimension of interactivity" (Friess and Eilders 2015: 327). Providing information thus stimulates participation and, ostensibly, adds to the completeness of the deliberative process.

[60] Each researcher would not necessarily have to start from scratch. Remember that our model is predicated on organising citizens into self-contained deliberative microcosms comprising about 10 citizens each and then organising those microcosms into a pyramidal structure. In this sense, in a polity of 1000 citizens there might be as many as 100 researchers – one per ten citizens. If these researchers were, themselves, organised by means of a pyramidal structure, then we would have the means by which to implement a division of labour in a coordinated fashion. Given an appropriate design, then, it might be a relatively easy process to develop dossiers on complex issues. The deployment of pyramidal networks among academics and experts, moreover, speaks to the idea of linking expert knowledge directly to lay deliberation; i.e. experts could compile dossiers themselves, or help to resolve issues of partiality or clarity when they arose.

[61] This kind of reputation system is most often used to create trust between two parties using an e-commerce service, like eBay. If others have successfully transacted with an individual, then it is likely that that individual can be trusted. See, for example, Beldad, de Jong, and Steehouder (2010) for a literature survey on the antecedents of online trust.

[62] Price, Nir and Cappella (2006: 19) note that interactive online processes are characterised by a phenomenon whereby "individual members themselves contribute to the shared norms [of the group] by which they are in turn influenced". In other words, the norms of the group are co-established based on the expectations and ongoing actions of its members. If a system of reputation can shape positive social norms – civility, rationality, etc – from the beginning, then there is a better chance that new participants will internalise those norms.

video games, and using those to drive participation and learning in non-game processes. Experience bars, rewards for effort, multiple long and short term aims, and frequent and clear feedback, are all game elements that help to drive "engagement loops" that lead to motivation and learning (Chatfield 2010; Kim 2011). Gamification generally does "work" (Hamari et al 2014) and has been used to facilitate online deliberation and improve citizen engagement (Eränpalo 2014; Thiel et al 2016; Hassan 2017; Masser and Mory 2018). For our purposes, then, gamification might create conditions where participants were incentivised to deliberate in more ideal ways.

Empowerment: Jansen and Kies (2005) differentiate between 'strong' public spaces and 'weak' public spaces. A public space is strong when participants expect the outcome of their participation to be meaningful or have a meaningful effect, and weak when not. The empirical evidence suggests that strong spaces are more deliberative than weak spaces (ibid). Thus, if citizens believe that their deliberations will have real-world effects then they are more likely to take those deliberations seriously. While we do not deal with empowerment specifically in this chapter – deliberative networks remain mostly theoretical constructs here – it is the primary focus of the next chapter; how deliberative networks can be deployed in order to empower citizens.

Overall, then, we can identity various design specifications that would help to ensure more complete online deliberation. These specifications would thus form the bedrock of our bespoke application. Next, we evaluate briefly the technological feasibility of building and broadly deploying such an application.

4.4.2 Technological Feasibility

The feasibility of our model of ICT-facilitated deliberative democracy is premised on the fact that the problem of scale can be solved by means of technology. In this brief section we provide evidence for this claim by comparing our bespoke application to the spread of messenger apps, and by citing the rapid penetration of the internet and adoption of smart phones across the globe.

The use of messenger apps has seen tremendous growth in just a few years, with 1.1 billion active users in 2013 growing to 3.6 billion in 2016 (GSMA 2017[63]). Total unique mobile subscribers across the world numbered 4.8 billion in 2016, of which 3.6 billion were in developing countries. By 2020, the total number of unique subscribers is projected to number 5.7 billion. Similarly, by 2020, the global adoption rate for smartphones is estimated to reach 65%.

[63] The GSMA Association is a trade body that represents some 800 mobile operators around the world.

Messenger apps, moreover, are beginning to form a foundation for an integrated digital-economic network. WeChat, in China, for example, connects its 700 million users with some 30 million digital merchants, including small, medium, and large enterprises (GSMA 2017: 23). This is an example of the "prodigal network effect" (ibid) that becomes increasingly possible as smartphone adoption increases, and business models change in response. As such, the growth of mobile computing fuels the rapid development of the collaborative or sharing economy[64], exemplified by the rapid rise of companies like Uber and AirBnB.

Our claim here, then, is that the penetration of the internet and the adoption of smartphones make feasible the deployment and adoption of a bespoke application designed to facilitate deliberative democracy at scale. Using messenger apps as a benchmark, we can also see that such an application could *in potentia* connect billions of global citizens together within a single network.

Problems related to the "digital divide"[65] of course, remain, particularly to the extent that internet access and smartphone penetration do not immediately translate into the capability to use these technologies affordably, safely, or effectively (Blau 2002; Graham 2014; Van Dijk 2017). The universal provision of affordable internet access and mobile computing devices is, however, a problem that we suggest might be solved by means of our ICT-facilitated model of deliberative democracy, primarily by means of funding such provision through the implementation of financial transaction taxes[66]. Narrowing the divide in terms of capabilities is a more difficult problem, but also more feasible in light of the kinds of economic and global governance transitions we envisage in later chapters. We would suggest, then, that the implementation of an ICT-model of deliberative democracy is one means by which to rapidly narrow the digital divide.

Finally, it might be objected that any bespoke application would be vulnerable to hacks, surveillance, manipulation, or censorship, thus undermining the desirability or feasibility of our ICT-facilitated model. Blockchain technology, however, can help to solve this problem. In the previous chapter we

[64] We return to the sharing – or collaborative economy – in chapter six

[65] In an important early work, Norris (2001: 4) distinguishes between the global divide (those who do and do not have internet access), the social divide (the gap between information rich and information poor countries), and the democratic divide (the difference between those who do and do not use the "panoply of digital resources to engage, mobilize, and participate in social life"). In this sense, while the global divide is narrowing, the social and democratic divides may not be.

[66] In terms of funding global public goods, see Chapter 8. We should note here, however, that revenue accruing from the taxes we envisage should be in the range of between $100 - $700 billion per annum. This amount would thus be sufficient for the universal provision of internet access and, for example, the provision of low cost computing devices. See Selding 2016 on provision of internet by satellite, Project Loon (https://x.company/loon/; Popper 2015) for provision via balloon technology. See also Facebook's internet.org or Free Basics project (https://info.internet.org/en/story/free-basics-from-internet-org/) for initiatives geared towards providing universal access to technology and learning tools.

noted that blockchains enabled immutable decentralised ledgers of information, and that smart contracts enabled the development of decentralised autonomous organisations (DAOs). In a similar vein, blockchains enable the creation of distributed applications (dApps) that run on distributed computing architectures – like Ethereum – without the need for centralised control or infrastructure[67]. Thus, if our bespoke application were developed as a decentralised application it would be difficult, if not impossible, for governments or third-parties to monitor, disrupt, or manipulate the running of the application.

4.5 Conclusion

In this section, then, we have laid a firm foundation for our model of ICT-facilitated deliberative democracy. We noted that, at its core, deliberative democracy is about reasoning among equals, and entails deliberation, political equality, and non-tyranny. We also defined deliberation in terms of the framing of problems and the identification of possible solutions; the essence, therefore, of the global collaborative networks that would be required for the solution to the interrelated crises of the 21st century. To this end, we also noted that deliberation might be more or less complete, depending on the extent to which participants remain civil, the extent that assertions go answered or unanswered, and the extent to which the information available is sufficient and accurate. Finally, and in relation to an understanding of deliberation as problem-solving, we noted the epistemic function of deliberation: that it might enable *better* choices because it is a means of crowdsourcing information and distributing problems between multiple participants. Again, the link between the epistemic function and a collaborative strategy for solving wicked problems is important.

Empirical evidence – collected primarily by means of deliberative polls and similar experiments – supports the idea that deliberation engenders several positive outcomes: social learning, shifts in preference, and increases in knowledge and understanding. While meaningful deliberation does occur in unstructured online environments, like blogs and comment sections, it is far less complete than in structured face-to-face spaces. What is most important, however, is that the completeness of online deliberation depends for the most part on the design specifications of the online environment itself.

[67] Ethereum is premised on the ability to run smart contracts as applications; running "exactly as programmed without any possibility of downtime, censorship, fraud or third party interference" (Ethereum.org). Swan (2015: 21) defines Ethereum as a "foundational general-purpose cryptocurrency platform that is a Turing-complete virtual machine", and as the "underlying blockchain-agnostic, protocol-agnostic platform for application development to write smart contracts that can call multiple other blockchains, protocols, and cryptocurrencies". As of 2017, more than 700 distributed applications have been created that run on Ethereum, ranging from computer games, to notarisation services, to betting platforms, to social networking applications (stateofthedapps.com).

We have thus outlined several key requirements for a bespoke application that would engender more complete online deliberation.

Finally, we noted that the widespread penetration of internet access and the adoption of smartphones suggest the technological feasibility of widely deploying our bespoke application. Although problems related to the digital divide are important, they do not pose insurmountable problems. Last, we noted that blockchain technologies could enable our bespoke application to run in a distributed manner, ensuring that the application was shielded from monitoring, manipulation, or disruption.

Overall, then, we have outlined the requirements for creating deliberative microcosms of the citizenry: small groups of citizens capable of meaningful online deliberation. These microcosms would thus form the constituent elements of a pyramidal council system that would reconcile deliberative democracy with mass engagement, and thus lead to the formation of global collaborative networks. We can now turn to how these microcosms are organised into pyramidal structures.

5. Pyramidal Networks to Pyramidal Democracy

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5.1 Introduction

In the previous chapter we outlined how a bespoke application might operationalise deliberative democracy theory in order to facilitate meaningful deliberation among a small group of citizens. We noted various design criteria that would facilitate such deliberation and noted, as well, the technological feasibility of deploying our bespoke application widely throughout society. We did not suggest, however, how our bespoke application would actually reconcile deliberative democracy with mass engagement.

Our objective in this chapter is to outline exactly how these small groups of citizens – these deliberative microcosms – could be connected together by means of pyramidal structures, and thus how such reconciliation is to be achieved. The key problem in deliberative theory is "how to overcome the barriers to citizen deliberation in communities numbering in the thousands or millions" (Fishkin and Luskin 1999: 4). The proverbial answer is to augment liberal democracy by means of regular and extensive deliberative polling. If the logistical problems are insurmountable, the argument goes, then we should try to ensure that at least a representative *sample* of citizens engages in deliberative practices.

We argue here, however, that pyramidal networks make it feasible to overcome the problems of scale and incentive, problems that have led many deliberative theorists to suggest only piecemeal implementations of the theory. In this chapter, therefore, we suggest how pyramidal deliberative networks solve the problem of scale by distributing citizen engagement within thousands of tightly-coupled groups, which are, in turn, organised into a pyramidal structure with clear rules as to how the deliberations at lower tiers of the structure relate to deliberations at higher tiers. Hence, the core idea in this chapter is that pyramidal deliberative networks facilitate a "decentralized, multi-layered representative democracy", where citizens self-organise into a "pyramidal hierarchy of small groups" and participate in deliberative policy formation (Pivato 2007: 1).

There are four foundational concepts that are key to our argument: pyramidal networks, pyramidal deliberative networks, democratic mechanisms, and, finally, pyramidal democracy. Each concept is a more developed version of the previous concept. The progression from pyramidal networks to pyramidal democracy thus embodies a set of conceptual stepping stones that help to explain how we might transition from the status quo to a state of affairs where mass citizen engagement is feasible. We proceed as follows:

First, we outline the fundamental component of our ICT-facilitated deliberative model of democracy: the pyramidal network. This network is formed when a body of citizens self-select, or are randomly assigned, by means of our bespoke application, into small groups – deliberative microcosms – of roughly ten members. A body of one thousand citizens would form, then, an array of one hundred groups with each group comprising ten citizens. Each group would thus be a deliberative microcosm in its own right, deliberating over preferences or policy by means of our bespoke application and with more *complete* deliberation facilitated by the design criteria we have previously outlined. The key idea here is that each group would then elect a delegate to represent the views of the group at the next highest tier of the pyramid. Those delegates would then self-select into groups and the process would repeat until all citizens at the base of the pyramid were represented by a group of delegates at the top of the pyramid. Our key objective is thus to show how the pyramidal network is *scale-independent*; it functions relatively identically whether the body of citizens comprises 1000 members, 100 000 members, or 100 million members. We thus begin to see how the pyramidal council system might be realised by means of ICT.

Second, we suggest how a pyramidal network is transformed into a pyramidal *deliberative* network; i.e. how the deliberations in each constituent group in the network, at all tiers, can be meaningfully aggregated. We suggest that this problem is solved by means of *compression*: an iterative process where each citizen in each group suggests a solution to the given problem and, by means of voting,

editing, and compromise, merges those solutions into a *more limited* set of solutions. Citizens are incentivised to merge their solutions because their delegates can represent only a limited set of solutions at the next highest tier of the pyramid. This process repeats until all the potential solutions framed at the base of the pyramid have been merged into a final set of solutions at the top of the pyramid. The key idea here is that compression reconciles deliberation, not only with mass engagement, but with meaningful preference aggregation.

Third, we outline how a deliberative network is transformed into a pyramidal democratic mechanism. The basic components of such a democratic mechanism are: issue publics, wheel configurations, points of authority, and open communication. The key idea here is that the top-tier delegates of deliberative networks begin a process of communication with points of authority – elected officials or corporate spokespeople – in order to communicate the social demands or concerns of citizens. Communication is 'open' in the sense that all citizens can access any communication that is sent on their behalf. Democratic mechanisms are thus a tool by which citizens make social demands for the modification or implementation of policy.

Fourth, we outline how democratic mechanisms give rise to formal pyramidal democracies. A pyramidal democracy results when a democratic mechanism orientated towards an organisation is instantiated as the means of formally governing that organisation; i.e. when top-tier delegates replace, essentially, the points of authority. In this sense, then, local government becomes a pyramidal democracy when the top-tier delegates of a community-based democratic mechanism assume official office. The basic components of formal pyramidal democracies are: constitutions, rulesets, and remuneration. If pyramidal democracies are feasible, then various democratic innovations become feasible: intra-party democracy, distributed politics, and distributed government.

In this chapter, however, we do not deal specifically with the underlying mechanism that drives the transition from deliberative networks to formal pyramidal democracies; i.e. we do not explicate exactly why we would expect pyramidal networks, mechanisms, and democracies to work in practice. We deal with this underlying mechanism, however, in the following chapter. Similarly, there are two key objections or problems that may occur to the reader as they follow the arguments in this chapter: what incentivises citizens to participate, and how can a tyranny of the majority or elite capture of pyramidal networks be avoided. We confront these challenges head-on in the next chapter.

5.2 Pyramidal Deliberative Networks

5.2.1 Pyramidal Networks

Recall that at the heart of Macpherson's (1977: 108) model of participatory democracy lay a pyramidal council system, with "direct democracy at the base and delegative democracy at every level above that". Similarly, in our model of ICT-facilitated deliberative democracy, the pyramidal network is the core organising principle. It is the means by which we structure the participation of citizens and the means by which we consolidate their deliberative output.

A pyramidal network is formed by means of the following steps: 1) a given group of citizens self-organise into small groups by means of our bespoke application; 2) these groups thus form the base – or Tier 1 – of the pyramidal structure; 3) each group at the base then selects a delegate to represent the group at the next tier of the pyramid; 4) these delegates then self-organise into small groups themselves, forming the second level – or Tier 2 – of the pyramidal structure; 5) this process repeats itself until all citizens at the base of the pyramid are represented by a single group at the top of the pyramid.

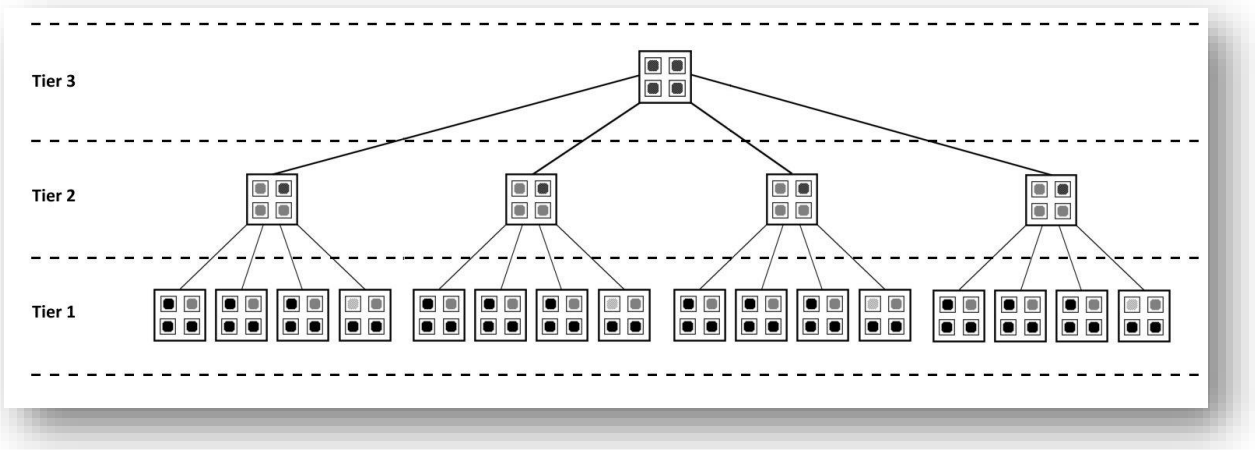

Image 1: A pyramidal network

In the image above, we can see a visual representation of a pyramidal network comprising 64 citizens and three tiers. Each group in this pyramid has exactly four citizens and so Tier 1 has 16 groups and 64 citizens, Tier 2 has 4 groups and 16 delegates, and Tier 3 has 1 group and 4 meta-delegates. All citizens at the base of the pyramid are thus represented by the four meta-delegates at the top of the pyramid; i.e. all citizens in the pyramidal network are represented by the network's "top-tier" delegates. In what follows we outline some of the foundational components of pyramidal networks: publics, group formation, delegate selection, and delegate recall.

Publics: In order for a pyramidal network to be formed, a public – a collection of citizens – must exist from which to form the network. There are three key sources from which publics might derive: communities, institutions, and issues[68]. Communities might be neighbourhoods, voting districts, towns, citizens, or nations. Institutions might be schools, religious organisations, small businesses, corporations, social movements, universities, trade unions, or trade organisations. Issues might be broad – ranging from the political, environmental, and economic – or narrow or niche – ranging from supporters of a single sports team to hobbyists interested in a particular field of technology. There is, of course, significant overlap between communities, institutions, and issues.

Of core importance, however, is the idea that the public in question must have an interest in consolidating their preferences, by means of a deliberative process, *in order to* affect policy, project power, or otherwise engender some kind of real-world outcome. If the public in question did not have this interest, then the formation of a pyramidal network would not strictly be necessary. Citizens who liked pictures of cats, for example, would not need a pyramidal network in order to share or discuss such pictures. It is only when they had an interest in a specific outcome – government policy regarding stray animals, for example – that a pyramidal network becomes necessary as a *tool* by which to facilitate such an outcome. As we develop the idea of pyramidal democracy further, we elaborate on the idea of publics and how they might use pyramidal networks to project power.

Group formation: Once a public exists, there are two ways by which it might be formed into groups: by random allocation or by self-selection. Random allocation would help to avoid "enclave deliberation" and "echo chambers" but might also lead to the silencing of citizens with minority opinions. Self-selection, on the other hand, might enable citizens of like-mind to deliberate together and to form blocs representative of minority interests, but at the potential cost of lowering the diversity of opinion and information in any given group of citizens. There are thus costs and benefits to either approach. As we suggest later on in this chapter, different pyramidal networks might be 'configured' to operate differently according to different contexts or according to the function for which the network was formed. What is important now, however, is that, at every tier above the first, self-selection is more appropriate then random allocation: delegates must ideally be able to form blocs so as to ensure that the voices of their citizens are as fully represented as possible.

The second aspect of group formation concerns the minimum and maximum size of groups. In the image above, we have used a group size of four, but this is for illustration purposes only. Because

[68] We are actually talking more about "issue-publics" here, but we return to this idea in the following section when we deal specifically with how pyramidal deliberative networks enable citizens to project social power and make social demands.

deliberation would be impaired if groups were either too small or too large, we suggest a minimum of seven and a maximum of eleven members. If a group lost a member, for one reason or another, and dropped below the minimum threshold, then it would need either to find a new member or disband. As with most aspects of pyramidal networks, however, the minimum and maximum group sizes could be configured according to the context and purpose of the network.

A third aspect of group formation is the ability of citizens and delegates to 'defect' from one group to another[69]. This may be a desirable feature in some contexts and undesirable in others, and, so, this option should be configured when the network is first formed. Under normal circumstances, however, it would be appropriate to allow citizens to 'shop around' for a group in which they felt comfortable to participate. If delegates are to properly represent their constituents, however, then the ability to defect is particularly important. This would enable voting blocs to form, if necessary, and thus ensure that delegates did not remain trapped in groups in which they were silenced. The threat of defection, furthermore, might go some way towards facilitating compromise.

Delegate selection: There are two means by which delegates could be selected: randomly or by election. While random selection might be useful in certain contexts[70], democratic election is likely to be the dominant method of delegate selection. Our bespoke application would thus require specific functions that would facilitate the election of delegates: candidate-nomination, voting rules (first-past-the-post, a method for breaking ties, etc), and a voting procedure (the timing of elections, how long they last, etc). It is not necessary to outline in detail these procedures here. The important point is that our bespoke application would require certain functions that enabled elections. Different pyramidal networks, again, might have different voting rules and procedures based on context and purpose.

A slight complication arises, however, when a delegate at Tier 2 is elected as a meta-delegate and thus joins a group at Tier 3. Because the delegate cannot simultaneously represent citizens at both Tier 1 and Tier 2, she must relinquish her delegacy of the Tier 1 group. In other words, when she is elected as a meta-delegate, her 'home' group would become her Tier 2 group, and her 'delegate' group would become her new Tier 3 group. Her original constituents at Tier 1 would thus elect a new delegate to directly represent them at Tier 2 and would no longer have the power to recall their old delegate. We provide a visual overview of this process in the image below.

[69] It might also be necessary to include functionality that allowed the citizens of a group to sanction or even 'eject' an uncivil or uncooperative member, pending some form of democratic procedure. A reputation system that disincentivised such behaviour, however, may help to limit the use of such a procedure.

[70] For training citizens to use pyramidal networks, for example, or where it is important for the network to be formed very quickly.

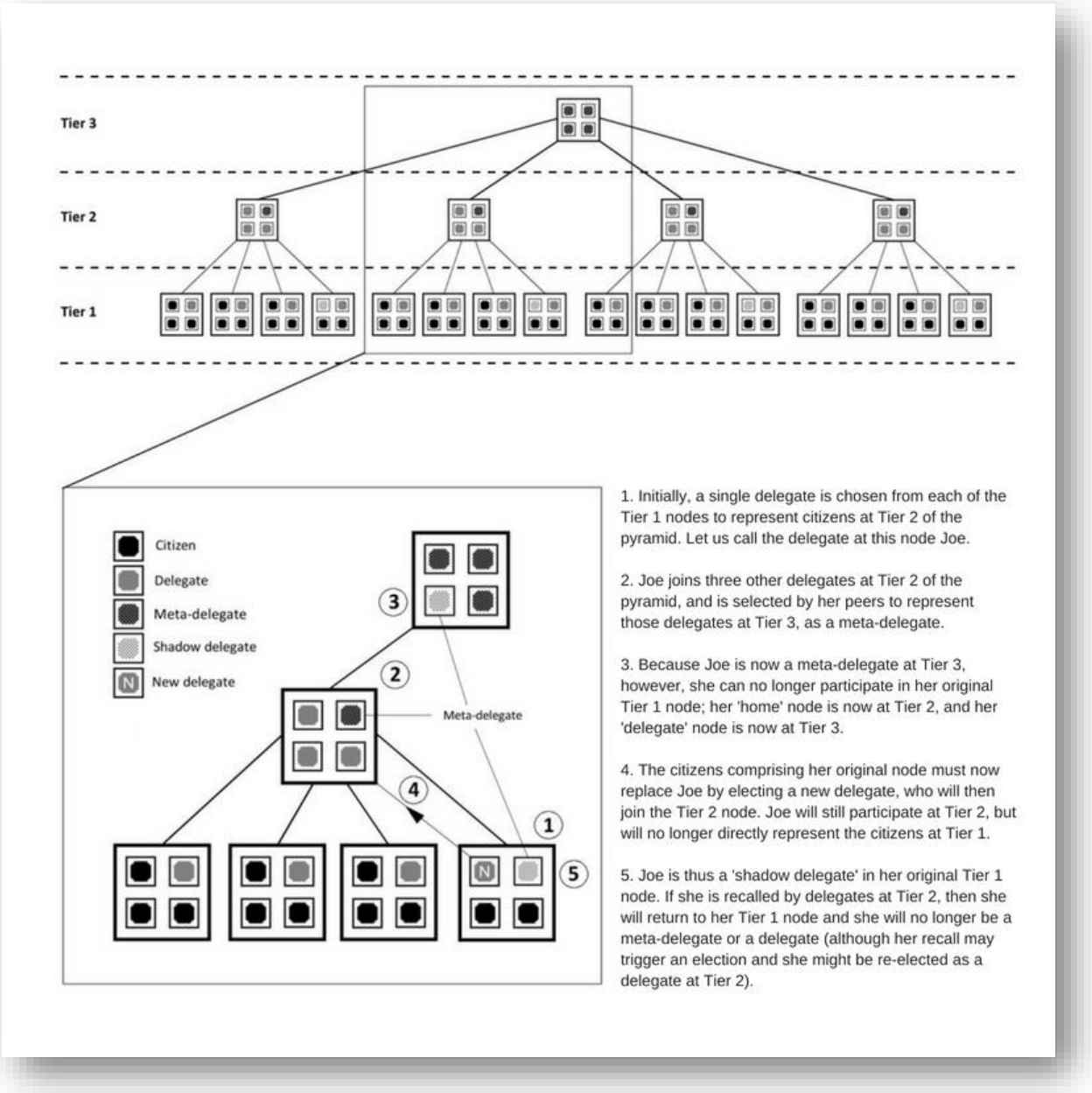

Image 2: An overview of the selection of meta-delegates

When delegates are selected at higher tiers of the pyramidal network, then, they can no longer be full participants in their original groups. Instead, they can participate only in the group from which they were elected, and the delegate group to which they assign themselves at the next highest tier. In this way, a top-tier delegate in, say, a network with six tiers, would participate only in the top-tier group and in the Tier 5 group from which they were nominated. Originally, however, this delegate would have been elected at her initial Tier 1 group, but after a series of successful elections, she no longer has any formal connections with that group.

Delegate recall: Citizens should be able to recall delegates who fail to perform, and, similarly, delegates should be able to recall meta-delegates who fail to perform. Our bespoke application would thus need functions that would enable groups to initiate a process of recall, necessarily entailing rules and procedures for doing so. Again, it is not strictly necessary here to outline the details of such rules and procedures. What is important, however, is the fact that delegate recall has the potential to cause what Pivato (2009: 10) calls a "dissolution cascade".

In short, whenever a delegate is recalled, a new election would be required in both the group from which the delegate was recalled and the group from which the delegate originated. Because those elections may change the balance of power in those groups, they may necessitate new elections and new recalls at higher tiers in the pyramid. Thus, it is possible that a single delegate-recall at the base of the pyramid could collapse the entire pyramid. There is also a possibility of a dissolution cascade, moreover, whenever a change occurs in the composition of a group: whether this results from a citizen defecting from one group to another, or from delegate recall, or from a group disbanding because it no longer had the minimum number of participants. In short, whenever the composition of a group changes, there is a possibility of broader changes in the composition of the pyramid as a whole.

In Appendix II, based on Pivato's (2007, 2009) work, we outline in more detail the technical nature of such cascades and how they can be prevented. For our current purposes we can note simply that the introduction of a *cooling period* would significantly reduce the likelihood of such cascades from occurring. A cooling period would mean that newly elected delegates or newly defecting citizens would be ineligible for participation in their new groups for a specific period of time, thereby disincentivising capricious recall or defection. As Pivato (2009: 9) notes, by changing the length of the cooling periods we can 'tune' the stability of the pyramid; i.e. attempt to find the right balance between stability and flexibility.

In this subsection, then, we have outlined the foundational component of our ICT-facilitated model of deliberative democracy: the pyramidal network. The key idea is that, by means of iterative group formation and delegate selection, groups of citizens can be organised such that all citizens at the base of the pyramidal structure are represented by a single group at the top of the pyramid. Of key importance is the fact that pyramidal networks are *scale-independent*: they operate in the same way independently of whether the base comprises 100 or 100 million citizens. Moreover, the increase in the size of the base is not positively correlated with the length of the path between nodes – the number of links between citizens at the base and delegates at the top-tier. In this sense, and given an average group size of 10 citizens, a base comprising 100 citizens would have just two tiers while a base comprising 100 million citizens would have just eight tiers. There would therefore be, in a network

comprising all seven billion global citizens, just ten tiers and only eight intermediary delegates between a citizen at the base of the network and the top-tier delegate that is ultimately responsible for representing that citizen.

The scale-independence[71] of pyramidal networks is thus the means by which we claim that ICT makes it feasible to reconcile deliberative democracy with mass engagement. We have not outlined, however, how the pyramidal network is meant to engender deliberation, or, more to the point, how the deliberations of the members of each group are to be meaningfully aggregated. It is to this problem that we now turn.

5.2.2 Pyramidal Deliberative Networks

Pyramidal networks become pyramidal deliberative networks under the following circumstances: 1) when citizens use our bespoke application to deliberate over specific issues or problems within their individual groups; 2) when the output of those deliberations is communicated to the next tier of the pyramid, by means of delegates, and thus forms the input for a new round of deliberation at the next highest tier; 3) where delegates are then empowered to deliberate over how best to reconcile and merge the considered views of their constituents as a whole, thus becoming empowered to make compromises and move towards consensus positions; and 4) when this process iterates until the deliberative output of citizens at the base of the pyramid has been reconciled into a set of position-statements or proposed solutions at the top-tier of the pyramid.

The mechanism by which this might be achieved is a process that we call *compression*: an iterative process of solution-creation, solution-voting, and solution-merging, occurring within each group over a pre-defined period of time. By 'solution' we are referring specifically to a piece of user-generated text that reflects the *preference* of the individual citizen. Recall that in our solutions-based definition of deliberation, outlined in the previous chapter, that deliberation is thought to include a "careful examination of a problem or issue, the identification of possible solutions, the establishment or reaffirmation of evaluative criteria, and the use of these criteria in identifying an optimal solution" (Gastil 2000). What we mean by 'solution', then, is a piece of text that summarises each citizen's preferred solution to a given problem[72]. From a technical perspective, solutions would be sections of

[71] We elaborate on this claim of scale-independence in the following section.

[72] In the event that the pyramidal network is deliberating over a broad policy issue rather than a discrete problem, then the 'solution' might be more akin to a position-statement; a qualitative description of what information or values the citizen thinks are relevant to the framing of problems within that broad policy issue. In this sense, the question of "What to do about backstreet abortions?" suggests the need for solutions, whilst the question "Should abortion be legal?" suggests the need for position-statements.

editable text, integrated into the design of our bespoke application, that would be visible to every member of the group.

This concept of a solution – in conjunction with the capacity of ICT to enable citizens to create and revise text in a dynamic and interactive manner – forms the foundation for how we suggest deliberative outputs at the base of the pyramid could be aggregated. In what follows, we outline the five stages of compression: initial statements, communicative deliberation, voting/merging, consolidation, and iteration.

For the purposes of illustration, let us assume that a group of six citizens are engaged in a process of participatory budgeting by means of which they must decide on how to spend some earmarked funds in order to make their town, Citizenville, less carbon-intensive and more carbon-neutral. Let us assume also that Citizenville comprises 10 000 citizens and that the budget available is $1 million, or $100 per citizen. Finally, for the sake of argument, we also assume that the participants are cooperative; they accept the underlying premise that money should be allocated to carbon-reducing projects. The process of compression thus follows as such:

Initial statements: Citizens begin first by editing their own solutions to reflect their initial preference. Some might suggest subsidies for privately-owned renewable energy systems, like solar panels or solar geysers, while others might suggest larger publicly-owned microgrids or windfarms. Others might rather suggest the implementation of urban agriculture projects that provide local produce and engender positive externalities like community-engagement or increased employment. Others may simply indicate no preference all together. Initial statements thus 'get the ball rolling' by requiring citizens to proffer an initial solution. In this sense, it may be beneficial, as a design specification, to require citizens to make initial statements before they can view the solutions of others or before they can communicate more generally within the group.

Communicative deliberation: Once initial statements are made, it becomes possible for citizens to use the instant messaging functions of the bespoke application to begin a process of deliberation: to evaluate each other's solutions, to highlight similarities, to tease out broad differences in proposals, to clarify misunderstandings, or to suggest the merging of one or more solution into a single consolidated solution. In this sense, the initial statements form a foundation by which citizens can exercise their "self-governing capacities" (Bohman 1996: 7) – understanding, imagining, valuing, desiring, storytelling, and arguing.

The communicative deliberation process occurs, moreover, both synchronously and asynchronously: when two or more citizens find themselves online at the same time, a deliberative conversation might

ensue whereby the aforementioned capacities are exercised. On the other hand, some citizens might engage only periodically, reviewing and weighing-in on the outcomes, findings, or assertions of the preceding conversations[73]. Citizens might also agree, in a colloquial fashion, to meet online at specific times in order to engage synchronously. The picture that emerges, then, is of the potential for a process of communicative-deliberative engagement that occurs both synchronously and asynchronously over a given period of time. This process is subsequently coordinated and driven by the voting/merging function that is inherent to the design functionality of solutions themselves.

Voting/merging: Each citizen has a single vote which they can attach to any of the available solutions, including their own. Votes can be switched at any time and, when a solution is edited, votes become 'shadowed' in the sense that citizens must confirm that they agree with the changes or else reassign their vote. Solution-based voting is thus a rolling straw-poll count that indicates the relative support that different solutions enjoy. Communicative deliberation – both synchronous and asynchronous – provides a means by which citizens harness the vote count to suggest how solutions might be merged together and thus reach compromise or consensus.

It is important to note that, under circumstances of voting and merging, the 'ownership' of solutions becomes tangential. Those citizens who control the solutions with the most votes thus become 'editors' rather than owners of their own solutions. Communicative deliberation is the means by which changes are proposed and, only when such changes attract some measure of support, is the actual solution changed and votes formally confirmed or reassigned. If a citizen fails in his responsibility as an 'editor', or otherwise makes changes that are not widely supported, then the original text of his solution can immediately be copied by another citizen, who will then become the 'editor' of that solution. In this way, there might be multiple processes of convergence and divergence as solutions gain and lose support over time.

The key question, however, is what motivates citizens to merge solutions rather than to stick with their own articulated preference. The answer is that delegates can communicate only a limited number of solutions up to the next tier of the pyramid. We would suggest, then, that based on an average group size of ten, delegates be allowed to 'take with them' only the three most popular solutions. Citizens with outlying voices would thus be incentivised to try and find compromises, and the group as a whole would be incentivised to reach consensus so as to better empower their delegate to represent them at the next highest tier. Where compromise was not possible, however, citizens

[73] We would suggest that one imagine that our bespoke application is similar to engagement by means of an instant messaging application like WhatsApp. In this sense, one might receive push notifications (messages that pop up on mobile devices to update the user about a change in status of their installed applications) when someone responded to a question, or when a solution was edited, etc.

could defect and seek out groups where their preferences were better reflected. The limitation on the number of qualifying solutions leads, therefore, to the next stage: consolidation.

Consolidation: In this phase, citizens are made aware of a time limit on their deliberations. At a certain point, solutions become 'locked' and can no longer be edited. Participants are thus incentivised to merge their solutions prior to the deadline. After this initial deadline has passed, however, a second deadline on the allocation of votes arises. During this phase, and if some level of compromise or consensus had not been reached, citizens might then engage in communicative deliberation in order to convince their peers to support one solution over another. After the second deadline is reached, votes can no longer be changed, and the final three solutions are selected – with a tie-breaking mechanism, perhaps a random coin-flip, required in the event of deadlock. Delegates then 'take with them' the chosen solutions to the next tier of the pyramid.

Iteration: Delegates now self-organise into groups at the next highest tier of the pyramid. Prior to forming groups, delegates might compare their own solutions to those of their peers and thus form groups based on shared preferences[74]. This would make the delegate's job of representing their citizens easier and, if necessary, lead to the formation of voting blocs. An alternate possibility, at this stage, is to reorganise the base of the pyramid itself – prior, perhaps, even to delegate selection – such that citizens who supported similar solutions were reassigned into groups with like-minded choices. Although this would make the job of representation simpler, it might also limit the diversity of opinion and the completeness of deliberation at later stages. Only experimentation will suggest which option is better, or which is preferable in different contexts. The key idea here, however, is that delegates self-organise at the next highest tier and begin anew the process of deliberative communication, voting/merging, consolidation, and iteration.

Given an average delegate group size of ten and given that each delegate 'brought forward' a maximum of three solutions, the total number of solutions in each Tier 2 group would be between 10 and 30; 10 if each group reached total consensus, and 30 if no group reached consensus. If groups *did*

[74] Our bespoke application might facilitate this process by two means: 1) by analysing the text of solutions in order to find similar vocabulary or language use, and thus generate a list of possible matches; and/or 2) by "crowdsourcing" the matching process to citizens themselves. This latter function might be achieved by asking each citizen to compare two solutions – which have already been identified as similar – and then either validate or invalidate the assertion that the two are suitably similar. Given that the number of proposed solutions does not scale linearly with the total number of citizens in the pyramid – i.e there is likely to be only a relatively limited subset of proposed solutions for any given problem – the greater the number of citizens that validate matches, all things being equal, the greater the likelihood that matches will be accurate. Citizen-provided data, moreover, would help to "train" our matching algorithm; making it more effective as time goes by.

form on the basis of shared preferences, then consensus would be more likely and the total number of different solutions would be fewer.

Whatever the case, we would generally expect substantial variation to exist in the nature of proposed solutions; this variation increasing according to the complexity of the original problem and the open-endedness of how it was framed. In order to accommodate increased variety at higher levels of the pyramid, we can increase the maximum allowable solutions at each tier of the pyramid, perhaps in increments of two. This would mean that the meta-delegate selected at Tier 2 would be able to take with them, to Tier 3, five solutions rather than three, and the super-delegate seven solutions rather than five. Given that we increase the maximum number of solutions by two at each tier, a pyramidal network comprising 10 000 citizens would result in a set of seven solutions, and a network comprising 100 million citizens would result in a set of fifteen solutions[75].

To summarise, then, compression is the means by which we might aggregate the solutions or position-statements of citizens in a deliberative manner and at any scale. At the core of the process is the ability of citizens to edit their solutions in response to the communications and deliberations of the group. The ability to vote on solutions, and change those votes at any time, provides a rolling straw-count of support for different solutions. Because delegates can take with them only a limited number of solutions, citizens are incentivised to merge their solutions by means of deliberation and compromise. This process repeats at each tier of the pyramid until the original set of solutions proposed by citizens at the base of the pyramid is compressed into a final set of merged solutions at the top of the pyramid. We now turn to a number of clarifications and provisos.

First, the process of compression, as we have described it here, is not necessarily the only or best means by which a pyramidal network might be used to instantiate deliberation at scale. We would suggest, however, that any alternate method would need to be based on a roughly similar process. In this sense, then, the process of compression is not set in stone; there may be more effective methods and only by experimentation are we likely to determine those methods. Similarly, we are not suggesting that the functions we describe are the only possible or useful functions, especially when it comes to groups at higher tiers in the pyramid. We can imagine, then, a suite of possible functions that would better enable delegates to do their job in an effective and transparent manner: live-streamed video conferencing and collaborative document-creation tools, for example. The more that

[75] By changing the number of solutions that can be carried forward at each tier, we would of course change the total number of solutions that were aggregated at the top of the pyramid. Experimentation would help to determine, in different contexts, the optimum balance between low numbers – that incentivised compromise – and high numbers – that increased diversity.

our bespoke application were developed and tested, then, the more we would expect additional functions to be added.

Second, nothing necessarily prevents face-to-face deliberation from playing an important role in the process of compression. Although it is unlikely that citizens at the base of the pyramid would be willing or able to engage face-to-face, this likelihood increases the higher up the pyramid we go. It would be feasible, then, and depending on the geographical basis of the pyramidal network, for higher tier groups to meet publicly in order to deliberate in person. We might add functions to our bespoke application, moreover, that enabled citizens to pose questions or provide feedback, and thus also participate to some degree in face-to-face deliberative events. The more that deliberative networks became legitimate democratic mechanisms, as we see in the next section, the greater the likelihood that face-to-face deliberation would play an important role.

Third, a variety of different voting mechanisms could form part of our bespoke application, with different mechanisms chosen depending on the type of question or issue under consideration. Pivato (2009: 16-7), drawing from the literature, suggests the following mechanisms and the cases under which they would be most useful: 1) a majority vote for a choice between two alternatives; 2) a Borda count for aggregating ordinal preferences on normative issues; 3) a range vote for aggregating cardinal preferences on normative issues; and 4) the mean or median of the group opinion for deciding quantitative issues.

It is important to note that these mechanisms do not replace compression. Instead, they could prove useful either as an input to the deliberative process, or as a means of choosing democratically between one or more of the finalised solutions that result from the process of compression. In this sense – and taking low-carbon energy projects as an example – it might be useful, prior to compression, to ask citizens to rank-order various potential projects in order to create a foundation for the deliberative process. Similarly, if only a few projects can ultimately be implemented, then it would be useful to ask citizens to vote on which of the final set of projects – the output of compression – they thought most desirable. Voting mechanisms thus augment the process of compression, but do not replace it.

Fourth, we need to clarify the role of delegates. We have so far assumed that delegates will be capable of merging multiple solutions in an equitable and nonpartisan manner, an assumption which is problematic. Some delegates may press for one solution over another, or otherwise fail to equally represent the preferences of all their constituents. The threat of recall, however, might go some way towards resolving this problem. If we reorganise the base of the pyramid based on similar preferences, moreover, the problem is greatly attenuated, but at the cost, as we have noted, of diversity of opinion. All in all, we would expect different delegates to perform their roles with differing levels of

competency and non-partisanship, and only experimentation will suggest how best to resolve this problem. A reputation system that enabled citizens to grade the performance of their delegates would, moreover, allow for the iterative selection of more effective and nonpartisan delegates.

When it came to the representation of fringe or extremist solutions, delegates would have three options: 1) to moderate their position; 2) to form voting blocs large enough to see their position represented at the next highest tier; or 3) to have their voices excluded. There is thus some incentive for delegates representing fringe positions to moderate their positions. Compression – in combination with the shuffling of delegates to form voting blocs – may then tread a middle path between exclusion and inclusion. Ideally, we want to include as many voices as possible whilst compressing as many solutions as possible. Again, only experimentation will tell us the extent to which this is possible. Where compression fails, we would need to adjust our design criteria, or add functionality, so as to mitigate these failures.

Fifth, we need to clarify the role of citizens during the later stages of the compression process. Given that the communication and deliberation at higher tiers is publicly accessible, citizens should ideally track the contributions of their delegate in order to ensure that their interests are adequately represented. To this end also, delegates should use voting mechanisms or direct communication to update their constituents on the status of deliberations and, especially, to seek a mandate on proposed compromises and consensus positions. In this sense, then, more active citizen participation ensures a more responsive delegate, and a more responsive delegate ensures more active citizen participation.

Sixth, we should not assume that all citizens, all groups, or all delegates participate in an ideal manner. Some citizens will participate more than others, some groups will stagnate and disperse, and some delegates will perform well and some poorly. For compression to be successful, or even relevant, does not necessarily require optimum participation and performance on the part of citizens and delegates. What is required, however, is that the outputs of compression are validated in some way by the citizens that comprise the base of the pyramid.

In other words, in order for the output of deliberation to have *motive force*, it must be shown that a direct correlation exists between the solutions ultimately chosen and the consent of the citizens who were involved, however tangentially, in the selection of those solutions. In short, if citizens participate in legitimating the output of compression, then a requisite threshold of legitimacy has been achieved. Such a threshold would thus grant top-tier delegates a mandate upon which to seek the implementation of those selected solutions; i.e. a mandate to make social demands based on the

aggregated preferences of their constituents. This point informs, in the following section, our outline of how pyramidal deliberative networks become pyramidal democratic mechanisms.

Seventh, and finally, we should now have a clearer idea of how and why pyramidal deliberative networks are *scale-independent*. First, the pyramidal structure operates in the same way independently of the total size of the underlying population; i.e. the structure works identically whether operating with ten thousand or ten million citizens. Second, the process of compression allows for the meaningful aggregation of solutions or position-statements independently of the total size of the underlying population; i.e. a limited set of solutions derives from compression no matter how big or small the total base of the pyramidal network. Hence, we claim that deliberative networks are scale-independent.

However, this assertion is not strictly true. The larger the base of the pyramid, the more intervening steps and delegates there are between a citizen at the base and a citizen at the top tier. Similarly, the larger the base of the pyramid, the more limited, ultimately, the set of solutions – produced via compression – is likely to be. Thus, it is not strictly true that deliberative networks are completely scale-independent. The bigger they become, the more limitations there are on the capacity of any given citizen to be completely represented.

We would argue, however, that these limitations to total scale-independence are not so great that we should be reticent to claim scale-independence as a key feature of pyramidal networks. For example, we have already noted that a network comprising all seven billion global citizens would have just eight intermediary delegates between any given citizen at the base of the network and their ultimate delegate at the top-tier of the network. Given a system that enabled citizens to meaningfully engage with these eight delegates – and especially to escalate problems and concerns up the chain of representation – then it does not seem improper to suggest that such a network would be largely scale-independent. Similarly, it seems unlikely that for any given problem there are an infinite number of potential and irreconcilable solutions. In this sense, although compression necessarily results in a restricted set of total solutions, this restriction is not so dire[76] as to invalidate the assertion of scale-independence.

[76] We have previously noted that, given an increase of two solutions at each tier, a network comprising 100 million citizens would generate a final set of fifteen solutions. But this kind of progression assumes, essentially, that the solutions at the penultimate tier are similar enough to be integrated at the final tier without significant loss of perspective. It is not strictly necessary, however, to instantiate this final step of the progression. Not doing so would result in a final set of 150 solutions, assuming that each was dissimilar. It seems unlikely that many problems would have more than 150 separate and irreconcilable solutions. Thus, we can see how the pyramidal network is essentially scale-independent, given this slight modification.

Thus, although our claim to scale-independence comes with certain qualifications, it does not seem an unreasonable assertion to make. In this sense, we would assert that scale-independence is the key feature of pyramidal deliberative networks that makes the reconciliation of deliberative democracy with mass citizen engagement feasible.

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In conclusion, compression is an iterative process of solution creation, solution voting, solution editing, and – driven by these functions – communication and deliberation. At each tier of the pyramid delegate groups compress solutions until a final set of solutions is formed at the top of the pyramid. The total number of compressed solutions that result from this process may depend on the total number of tiers in the pyramid or may simply be configurable – chosen before the case – depending on the context or constituency of the network. Face-to-face deliberation should augment the process of compression wherever possible, this being more likely at the highest tiers of the pyramid. Voting mechanisms – like majority voting – might finally be used in order for citizens at the base of the pyramid to select on or more of the final solutions for implementation. Alternately, the results of compression might form the basis for a new question or problem and thus the process might begin again. Either way, the process of compression, as we have described it here, is the mechanism by which we suggest deliberative democracy might be reconciled with mass engagement.

To emphasise the point: if our bespoke application entails the design criteria we outlined in the previous chapter – pseudonymity, asynchronous communication, etc – then we might be able to create an online space capable of enabling more complete digital deliberation between a small group of citizens. If our bespoke application can, furthermore, structure large groups of citizens into sets of small groups by means of pyramidal networks, then we can link the deliberative outputs at lower tiers to deliberative inputs at higher tiers. If compression, finally, is successful in meaningfully linking these sequences of inputs and outputs, then we might be able to reconcile digital deliberation with mass engagement in a meaningful way. Thus, at the core of this reconciliation is the scale-independence of deliberative networks.

5.3 Pyramidal Democratic Mechanisms

A deliberative network, however, would have little intrinsic meaning for democracy unless it was operationalised by a specific public to produce a specific outcome. Hence, in this section, we suggest how deliberative networks are transformed into democratic mechanisms; i.e. how citizens project social power by means of deliberative networks.

We use the term mechanism rather than method in order to juxtapose pyramidal democratic mechanisms with the Schumpeterian 'democratic method' – the equilibrium model of democracy – that we encountered in chapter two. Whilst the democratic method was concerned purely with the periodic aggregation of votes so as to remove or retain political representatives, the idea of a democratic mechanism speaks to the importance of the citizens that constitute the mechanism. The difference between the two ideas is made clearer by the difference in the two terms: a method is a particular routine and established procedure for accomplishing something, whilst a mechanism is a system of parts working together.

Thus, when we use the term mechanism, we are talking about a process where the parts (citizens) bring something (policy, governance) into being. While the democratic method ensures – ostensibly – inclusion and political equality via periodic voting, a mechanism ensures inclusion and political equality by means of deliberative networks, compression, wheel configurations, and group flexibility. Policy modification, furthermore, is facilitated by means of open communication between the delegates at the top of the pyramid and a point of authority. It is this iterative open communication that does the work of the democratic mechanism. We proceed by outlining these basic components of democratic mechanisms.

5.3.1 The Basic Components of Democratic Mechanisms

Issue Publics: When we outlined, in the previous section, the basic components of pyramidal networks we noted that they required, for their formulation, a public – a body of citizens – by which the network could be formed. We noted also that there are three key sources from which publics might derive: communities, institutions, and issues. For our purposes, let us focus on the idea of issues and thus the concept of 'issue publics'.

The term 'issue public' was coined by Converse (1964), but the concept can be traced back to Walter Lippmann (1922) and John Dewey (1927). Price et al (2006: 34) define issue publics, drawing from Converse (1964) and Key (1961), as those "small, policy-bearing segments within the mass polity" that "attend" to particular problems and thus "engage political leaders and the media…and demand some degree of elite responsiveness and accountability". Issue publics, furthermore, tend to expand and contract according to an "issue-attention cycle" composed of five parts (Downs 1972):

1) The pre-problem stage (some highly undesirable social condition exists that has not yet captured the public's imagination);

2) Alarmed discovery and euphoric optimism (the public suddenly becomes aware of the problem, placing pressure on government to solve it; euphoric enthusiasm about society's ability to solve the problem)
3) Realization of the costs involved (a spreading realization that costs are high for solving the problem, and that the problem results from arrangements that are generating significant benefits for some group in society)
4) Gradual decline of public interest (people feel discouraged, threatened, or bored)
5) The post-problem stage (the problem is no longer in the spotlight but may be the subject of sporadic recurrences of interest; government agencies/initiatives may have been set up in stage two and persist into the future)

Issue publics, therefore, are likely to grow or shrink in size and activeness according to the issue-attention cycle. The ideas of issue publics and issue-attention cycles can be invoked to explain how public policy remains responsive to public opinion, despite inattention and lack of knowledge on the part of a vast majority of citizens; i.e. despite "rational ignorance" (Downs 1967). It is these small sections of the public, "sufficiently aroused and interested to learn, discuss and form opinions" (Price et al 2006: 34), that prevents bureaucrats and elected officials from determining public policy in isolation from voters. But to what extent do issue publics exist?

Iyengar et al (2008) find strong support for the 'issue public hypothesis' in elections: that voters prefer to encounter information about issues they care about rather than from candidates they expect to agree with. Bolsen and Leeper (2013) in an analysis of 29 surveys conducted in the US between 1997 and 2007, find evidence in support of the idea that citizens self-select news depending on issues of interest to them, offering hope for engaging more citizens in politics because the "prerequisites for the formation of issue publics are alive" (342). The active members of issue publics, however – those who are actively involved in interest groups – tend to express different opinions and more extreme attitudes then non-active members (Claassen and Nicholson 2013). This seems to indicate that, while issue publics may potentially be large, they are prone to misrepresentation or underrepresentation. Moreover, issue publics can be "highly complex and multi-faceted" in the sense that different segments of an issue public may display different levels of knowledge on the issue, different intensity of feeling on the issue, and different levels of political activity related to the issue (Price et al 2006).

If the findings of Price et al (2006) and Claassen and Nicholson (2013) are generalizable to the average issue public, then the overall picture that emerges is one where the visible component of an issue public is like the tip of an iceberg. If we looked below the surface, we would likely find a larger group of citizens who had a general interest in any given issue – with varying degrees of knowledge, intensity

of feeling, and propensity for political activism. This seems to follow from common sense: while most of us care to some degree about many issues, very few of us are actively involved in debate, discussion, or activism.

The key idea here is that the proliferation of deliberative networks – by means of the broad-based adoption of our bespoke application – might enable issue publics to coalesce in new and efficacious ways. In other words, deliberative networks could 'bring to the surface' the existence of much larger issue publics than were previously observable. Similarly, by means of compression, differences in knowledge might be better reconciled, intensity of feeling better actualised, and propensity for political activism better operationalised. Thus, we might see how deliberative networks – under conditions where our bespoke application began to permeate society – would help to actuate issue publics more broadly.

Points of Authority: In essence, a deliberative network becomes a democratic mechanism when citizens use the network to project social power in order to implement or modify policy. If this is to be achieved, then the outputs of deliberation must be orientated towards a point of authority that has the power to implement or modify policy. In most cases, points of authority are easily discernible. In the case of the nation-state, the points of authority are elected officials, civil servants, and regulative agencies. In the case of the firm, they are managers, executives, and shareholders. In the case of public institutions, like hospitals or universities, they are the managers, trustees, or related government departments. Thus, we can see how respective deliberative networks would need to be orientated towards a point of authority if they are to project power. This would mean, in practice, that the top-tier delegates of the pyramidal network would need to engage – communicatively and deliberatively – with the point of authority or a suitable representative. This leads us to our next point.

Open Communication: In order for top-tier delegates to effectively and transparently engage with points of authority, we suggest that all communication be 'open'. This means, in practice, that all communication – emails, phone calls, video conferences, face-to-face meetings, etc – are publicly accessible, whenever possible and appropriate, on the part of the citizens who comprise the deliberative network in question[77]. In this way, citizens can read, listen to, and watch the communication and dialogue that is generated on their behalf, and, more importantly, engage with the responses that are returned.

[77] We are not suggesting that every single piece of communication must be recorded and made publicly accessible. In order for both delegates and points of authority to properly do their jobs, it seems likely that some measure of 'backroom' discussion is appropriate. This should not, however, be the general rule.

In this sense, we anticipate the formation of open communication in the following sequence: 1) the aggregated solutions/position-statements/concerns that are generated by citizens form the basis for an initial communication between top-tier delegates and the point of authority; 2) this initial communication would lay out the concerns or suggestions of citizens, most likely in the format of an official letter, but sent via email; 3) the response returned by the point of authority, most likely an email itself, would be immediately visible to all citizens in the deliberative network; 4) this response might then generate a new round of deliberation and compression, and thus a counter-response on the part of top-tier delegates. This process of open communication could repeat until, ideally, policy is implemented or modified in a way that accounts for the views of the citizens that constitute the deliberative mechanism.

Implementing open communication might be as simple as requiring that delegates send all emails by means of our bespoke application, thus ensuring that citizens would have direct access to both the emails being sent and the replies being received. More advanced systems might enable points of authority, or their spokespeople, to login to our bespoke application and thus engage directly and transparently in deliberation with top-tier delegates. Video conferencing between an authority and delegates – in combination with citizen-sourced questions and real-time preference aggregation – would allow open communication to become far more immersive and multi-dimensional. Face-to-face deliberation in a public setting would, of course, allow delegates to engage in an optimal manner.

The basic objective of open communication, however, is to ensure that the aggregated preferences of citizens are not simply ignored by means of boilerplate responses. If an authority gives an inadequate response, or otherwise shows a lack of interest in engaging in dialogical communication, then that authority risks angering the citizens that constitute the deliberative network in question. This might lead to the provocation of citizens and an expansion in the size of the network, as well as citizens becoming more active and engaged than they otherwise might be. Open communication is thus one way by which mechanisms enable citizens to project power.

Wheel Configurations: Issues and social problems, however, rarely involve just one issue public or one point of authority. Taking renewable energy as an example, we might see how a variety of actors are involved: publics who are concerned about climate change, citizens employed in the fossil fuel industry who are concerned with the sustainability of their employment, corporations and their shareholders who are concerned with efficiency and profit, experts who can weigh in on the costs and benefits of change, and elected officials that can facilitate or impede the direction of change. Integrating these diverse actors into a single pyramidal network would not reflect, therefore, the various divergent interests at play. In other words, if all these diverse actors were distributed uniformly across the base

of a single pyramidal network, then it would be more unlikely that a fruitful and productive outcome would result from the process of compression. Different actors have different interests and different recourses to power, and these differences need to be taken into account.

We can solve this problem, however, by linking separate pyramidal networks into single 'wheel' configurations of networks. In this sense, then, separate networks might be formed that comprised the relevant actors for any given problem: a network of citizens concerned with climate change, a network of fossil energy company employees, a network of shareholders, a network of experts, and a network of elected officials. Each network might then form a spoke in a wheel, with the top-tier delegates of each network forming a single deliberative forum where the diverse interests of stakeholders would be suitably represented.

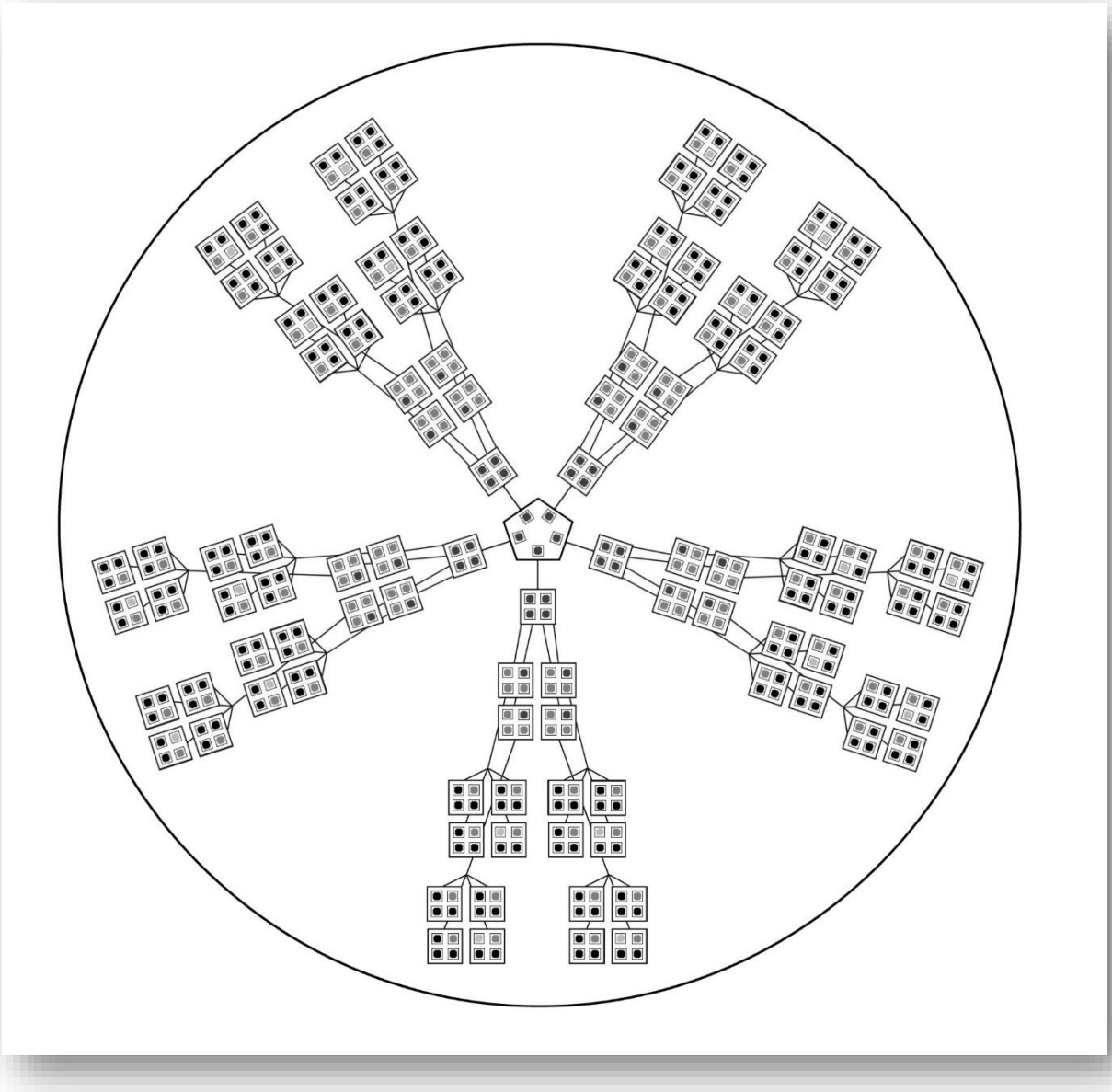

Image 3: A wheel configuration. A 'wheel' configuration composed of five separate networks, each comprising a pyramidal base of 64 citizens. There are five super-delegates at the centre of the spoke configuration, representing, then, the interests of the 320 citizens who comprise the wheel configuration.

Wheel configurations thus allow for the joining together of different networks, allowing for different issue publics, or networks of different sizes, to have an equal number of delegates engaged in the top-tier deliberative process. We should immediately see how this might be relevant in the case of country-specific networks. Taking the USA as an example, the citizens of all 50 states might form separate state-specific networks, which could then be joined into a single wheel configuration. The networks comprising each of those 50 states, moreover, might themselves be wheel configurations, with their spokes comprising county-specific networks. In this sense, then, wheel configurations – or wheels within wheels – are the means by which disparate issue publics can be joined such that representation is as equal and productive as possible.

5.3.2 Communities, a Democratised Public Sphere, and Broad Configurations

In the previous subsection we have outlined a model of the democratic mechanism and suggested the means by which it might enable citizens to project power. Based on the assumption that any given democratic mechanism would operate successfully in the way we have described – and taking into account that many might fail to do so for various reasons – we can begin to theorise how a society would look if it were generally composed of a multitude of democratic mechanisms operating within and across different spheres. In this sense, then, we can revisit the idea of issue-publics in light of various communities: communities of interest, communities of practise, communities of circumstance, and communities of purpose.

Communities: We have previously noted that democratic mechanisms require an issue-public in order to be formed. Our objective here is to expand on this idea by suggesting that democratic mechanisms could form on the basis of pre-existing 'communities', on the one hand, and could engender the creation of additional 'communities', on the other. We have several specific ideas of communities in mind: communities of interest, communities of practice, and communities of purpose, on the one hand, and then "imagined communities" (Anderson 1983) and "imagined geographies" (Said 2003), on the other. Our key contention is twofold: that democratic mechanisms can draw on communities of practice to create communities of interest and purpose, and that, in doing so, "imaginary" communities and geographies can become 'real' communities and geographies. We define the relevant terms as we proceed.

Communities of practice (CoP) consist of "practitioners who work as a community in a certain domain undertaking similar work" (Nardi 1993, cited in Fischer 2001: 3). Examples are architects, software developers, accountants, electricians, academic researchers, and civil servants. Any profession thus implies the existence of a community of practice, which itself entails a specific "domain-oriented knowledge" (ibid); i.e. a way of thinking and doing that enables the practitioner to do their job. Communities of interest (CoI), however, are formed when stakeholders from different communities of practice come together to "solve a particular (design) problem of common concern" (Fischer 2001: 4). Communities of interest can thus generally be thought of as "communities-of-communities" or as a "community of representatives of communities" (Brown and Duguid 1991; Fischer 2001). Communities of interest, moreover, become communities of purpose when they are authorised or otherwise made capable of operationalising their different domain-orientated knowledge in the interests of solving particular problems (Warren 1996; Winstanley and Woodall 2000; Tissen, Andriessen and Deprez 2000).

When discussing wheel configurations, above, we used the example of implementing renewable energy projects, noting that the configuration might comprise multiple actors: a network of citizens concerned with climate change, a network of fossil energy company employees, a network of shareholders, a network of experts, and a network of elected officials. In this example, then, each citizen thus derives from one or more community of practice, and the configuration as a whole might be conceived of as a community of interest. A community of interest, therefore, as compared with an issue-public, is a more technical and specific concept.

Our point is that – while an issue-public is necessary to form a democratic mechanism – a community of interest is necessary for the resolution of complex social problems because "communication and mutual teaching and learning are among the most important activities in framing and (re)solving design problems" (Fisher 2001: 2, drawing on Rittel 1984). The community of practice must become a community of purpose – authorised in some way to solve the problem – in order for it to be effective. Democratic mechanisms, therefore, might be the means by which communities of interest become communities of purpose.

We can therefore see, assuming that democratic mechanisms are capable of forming communities of interest and purpose, the relevance of said mechanisms for resolving the interrelated crises of the 21st century. Moreover, we can see how such mechanisms might form the basis for iterative processes of "cooperative democratic experimentation" and "social reconstruction"; ideas at the heart of Dewey's conception of the function of democracy. Recall that social reconstruction required the coming-together of real-wold communities in order to cooperatively interrogate the nature of social problems,

and then develop and iteratively test solutions. As Dewey notes, the work of social reconstruction can be done "only by the resolute, patient, cooperative activities of men and women of good will, drawn from every useful calling, over an indefinitely long period" (cited in Campbell 1995: 149). Democratic mechanisms may be the means by which to combine these men and women from "every useful calling" over an "indefinitely long period".

Our purpose, however, is not to dwell overlong on the idea of these different communities. Our objective is instead to suggest how the disparate formation of democratic mechanisms – across different locales and orientated towards different problems – might form a coherent "recipe" (Fung 2003) for the broad democratisation of the global public sphere. The recipe is as such: if pyramidal networks can 'map' various communities of practice and thus 'structurate' the citizens that comprise those communities, then those networks might be recombined, over time, into larger and larger communities of interest orientated towards the solution of broader and more complex social problems.

Consider, then, the example of the single democratic mechanism that was formed in order to deal with the complex problem of implementing renewable energy projects. This mechanism might be linked initially to a specific location – a single town or county. As open communication progressed, however, we might find that the various stakeholders were forced to translate their "domain-oriented knowledge" into more general terms, such that their interlocutors could understand their reasoning related to the various costs and benefits of different options. Processes of social learning might then result; comprising the first level of social reconstruction: collaboratively framing the problem and weighing the costs and benefits of different possible solutions. The second level comprises the iterative public testing of solutions, and their ongoing modification as new information becomes available.

Now, if similar democratic mechanisms to the one we have described above also existed in disparate locales, then stakeholders from different networks *who shared a community of practice* might then simultaneously form networks to better translate their domain-orientated knowledge. Consider, for example, that the mechanism above included a local bank manager who advised citizens on the options for funding their renewable energy projects. If similar kinds of mechanisms existed in other parts of the country, and local bank managers were similarly advising citizens on options for funding, then those bank managers might form a pyramidal network of their own. This would enable them to consolidate the advice that they gave, on one hand, and, moreover, enable them to develop new kinds of funding instruments based on their shared connection. A similar process might occur for any kind of professional involved in a democratic mechanism. The result then might be a *general process*

whereby domain-specific knowledge became structured by means of pyramidal networks. Once the initial democratic mechanism has served its purpose, then the individual stakeholders would be available, if willing, to integrate into new democratic mechanisms in different locales in order to help facilitate the resolution of additional social problems.

The idea here, then, is that while single democratic mechanisms might be formed to deal with single problems, once this 'mapping' has been completed, the stage is set for the interlinking and conglomerating of the constituent communities of practice and interest. Given some threshold of consensus or shared interest, then, larger and larger communities of purpose might result. If these communities were able to project social power, then we would have a "strong" public sphere, rather than a "weak" one; i.e. a public sphere capable of exercising authority (Fraser 1992). A strong and democratised global public sphere is the eventual result, then, that we might envisage from the broad-based proliferation of democratic mechanisms. In Deweyan terms, this democratisation of the public sphere would be the transformation of the Great Society into the Great Community.

A related function of this process of democratising the public sphere might be the transformation of "imagined communities" and "imagined geographies" into 'real' communities and geographies. According to Anderson (1983) the nation-state comprises an imagined community: a socially constructed idea of a group of people who share common ideas and preferences[78]. Mass media promulgate this imagined community by generalising the public, appealing to national sentiment, and by stereotyping the imagined communities of other nations. The nation is an imagined community primarily because we can never meet all our fellow citizens who comprise the community. Thus, despite the actual conditions of inequality or injustice that exists, the nation is always conceived as a "deep, horizontal comradeship" which, under conditions of war, enables millions to willingly die for the imagined community (16). If democratic mechanisms were to permeate society, then the imagined community of the nation might give way to a 'real' community of the nation. The state-level pyramidal network would be only one instantiation of such a real community.

In a similar way, the development of 'real' national communities might also give rise to 'real' geographies, especially insofar as communities of practice, interest, and purpose became composed of citizens from different nation-states. The idea of "imagined geographies" speaks to the idea that, due to the effects of mass media and stereotyping, we tend to perceive different peoples and places in restricted and stereotyped terms. The idea of 'Africa' is a key example. As a function of shared

[78] The community is "imagined" because "the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion" (Anderson 1983: 15).

communication, experience, and purpose, then, the broad-based permeation of deliberative networks and democratic mechanisms might then facilitate the transformation of imagined geographies and communities into real geographies and communities. This would harbinger, then, a more democratised global public sphere and a Deweyan Great Community.

Broad Configurations: The idea of a democratised public sphere implies also the idea of 'broad' configurations. When we outlined the idea of wheel configurations, we were thinking primarily in terms of single democratic mechanisms that comprised multiple groups of stakeholders with disparate or opposed interests. Taking into the account the possibility of a democratised public sphere, however, we might see how broader, more complex, and more multidimensional configurations might result; configurations that comprised disparate networks but orientated towards a single issue or problem. The key example we have in mind is a "social movement union"[79], comprising environmental groups, trade unions, academics, charities, and NGOs – all of whom would be orientated towards a single economic or social issue. If our assumption about the modularity[80] of pyramidal networks is correct, then it may be feasible for such broad coalitions to form, projecting substantial social power by means of the breadth of the institutions and publics from which they drew.

In this sense, then, broad coalitions might form under conditions where the public sphere was composed of a *landscape of pyramidal networks*. If we draw on a tripartite taxonomy of the state – markets, government, civil society – and we assume that each becomes gradually organised by means of pyramidal networks and democratic mechanisms, then we can conceive of society, as a whole, being composed of a landscape of pyramidal networks:

> **Markets**: A landscape composed primary of firm-specific networks – incorporating labour, management, and shareholders – which, in turn, form industry-specific configurations representative of specific professions and sectors at the local, national or global level. The market sphere might also comprise network configurations composed of trade organisations, professional organisations, and labour organisations – each of which might project power outside of their specific domain.
>
> **Government**: A landscape composed primarily of pyramidal networks linked to specific geographical areas and constituencies; i.e. democratic mechanisms linked to local, regional and national governments. This landscape might also comprise transnational configurations active in the governance and oversight of international institutions like

[79] We elaborate on broad configurations, and social movement unions specifically, in Chapters 7 and 8, where we consider the feasibility of global democracy and the realisation of social and economic equality.
[80] We outline this characteristic of pyramidal networks in the next chapter.

NGOs, international financial institutions, transnational corporations, and the United Nations.

Civil Society: A landscape composed primarily of educational institutions, interest groups, social movements, sports associations, pressure groups, and sharing economy initiatives. Wheel configurations would enable different chapters or branches of the same organisation to combine into larger configurations. Similarly, wheel configurations might enable different organisations with shared interests – environmental sustainability, for example – to combine into single configurations. Finally, new transnational pyramidal networks – unconnected with pre-existing organisations – could form in order to represent specific interests.

As democratic mechanisms began to permeate society, then it follows that a landscape of pyramidal networks might emerge. Each individual landscape comprises different communities of practice and different issue-publics. The 'mapping' of such communities and publics, however, might make feasible the formation of broad configurations that embodied diverse communities of practice. Such communities might then form a single community of interest and purpose orientated towards a single problem or issue. When we speak of a landscape of pyramidal networks, then, we are speaking of the possibility for building homogenous configurations from the building blocks of heterogenous networks, or, in other words, for generating broad national or transnational configurations.

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In summary, we can distinguish between a deliberative network and a democratic mechanism on the basis of three points: 1) when the network becomes orientated towards one or more points of authority (entailing, perhaps, the necessity for wheel configurations); 2) when top-tier delegates are authorised by citizens to communicate their solutions/preferences to those points of authority; and 3) when the subsequent process of communication is 'open'.

As we have already noted in the introduction to this chapter, various objections might occur to the reader at this stage. First, what would incentivize citizens to participate in democratic mechanisms? Second, what would incentivise points of authority to meaningfully engage with top-tier delegates? Rather than respond to these problems here – and interrupt our description of the sequence of progression from pyramidal network to full-blown pyramidal democracy – we rather confront them more fully in the next chapter.

5.4 Pyramidal Democracy

There are two senses in which we can use the term 'pyramidal democracy'. We can use it in the general sense to refer to the activities and processes of deliberative networks and democratic mechanisms, and we can use it in the specific sense to mean a system of formal governance based on democratic mechanisms. In this section, we outline pyramidal democracy in the second sense.

A pyramidal democracy results when a democratic mechanism orientated towards an organisation is instantiated as the means of formally governing that organisation; i.e. when top-tier delegates replace, essentially, the points of authority. In this sense, then, a formal pyramidal democracy is formed when the top-tier delegates of a community-based democratic mechanism assume official office in local government; when the top-tier delegates of a political party become party candidates for election; when the top-tier delegates of a firm-based pyramidal network assume some level of managerial control; and when the top-tier delegates of an issue-public mechanism become ombudsman with formal powers to sanction and set standards.

We begin by outlining the three basic components of pyramidal democracies: a constitution, a ruleset, and remuneration. Constitutions define the purpose of the democracy and set out the its scope of authority, its procedures for collective decision-making, and the rights and duties of the various parties. Rulesets define the practical procedures used by citizens and delegates to organise themselves by means of pyramidal networks. Remuneration compensates delegates at the highest tiers of a pyramid for their commitment of time.

Second, we briefly revisit Dahl's description of polyarchy. We note that pyramidal democracy would help to meet the first, second, and eighth conditions: allowing citizens to insert alternatives, providing identical information about alternatives, and ensuring that the preferences of citizens were reflected in decision-making during the inter-election period. Pyramidal democracy might then represent a reconciliation of a more ideal polyarchy and a participatory model of democracy.

Third, we examine the potential of pyramidal democracy to facilitate various democratic innovations: intra-party democracy, the rapid formation of new political parties, the empowerment of independent candidates, and the development of a popular branch of government. These possibilities, in turn, give rise to the potential for new kinds of political systems: distributed politics and distributed government. We begin with the basic components of formal pyramidal democracies.

5.4.1 Constitutions, Rulesets, and Remuneration

In this section we outline the three components required in order for deliberative networks and democratic mechanisms to form the basis for pyramidal democracies: a constitution, a ruleset, and a means of remuneration. These three components are envisioned to result in stable pyramids that can, in turn, form the basis for formal pyramidal democracies.

Constitutions: A constitution speaks to the need for a set of founding principles upon which to define and legitimise the governance of citizens. In a minimal sense, a constitution consists of a set of norms (rules, principles, or values) that create, structure, and define the limits of governmental power and authority (Waluchow 2014). In a richer sense, however, constitutions are about imposing significant limitations on the power of governing bodies and thus deal with the scope of authority, the mechanism used to exercise power, and the civil rights of each citizen (ibid).

In the case of pre-existing local and national governments, especially in Western liberal democracies, we would generally expect the scope of authority, decision-making mechanisms, and civil rights to be well-defined. In order for a local or national government to become a pyramidal democracy, we would need simply to formalise these constitutional elements where they were informal, and, of course, recodify the constitution to take into account a pyramidal network-based method of decision-making. This codification[81] of the pyramidal method into the constitution would be the most important distinction between a traditional liberal-democratic system of governance and a pyramidal democracy-based system.

The extent to which this change would affect the day-to-day operations of the government – or the institution or organisation in question – is variable and is dependent on the circumstances under which the traditional system transitioned to a pyramidal system. In this sense, then, different instantiations of pyramidal democracy might then codify different requirements for different levels of citizen participation, different voting mechanisms, and different procedures for citizen oversight of elected officials. Just because a system of government is pyramidal, then, does not necessarily mean that top-tier delegates – now elected officials – must include all citizens in all decisions[82]. The overarching idea in a pyramidal democracy is, simply, that the citizens who are to be governed by an authority have a

[81] While not ultimately adopted, the crowdsourcing of the Icelandic constitution – following the 2008 financial crisis – is a precedent for the democratic rewriting of constitutional documents.

[82] To a certain extent, the level of citizen participation is codified in the constitution. But it also might depend on the extent to which citizens, at any given time or in any given circumstance, expect their delegates to act more as trustees or more as representatives; i.e. to act on the interests that citizen explicitly express, or to act on the interests that the delegate believes is in the citizens' best interests. This is really a problem about the meaning of representation. We return to this problem in the next chapter.

clear mechanism by which to select the rules under which they are governed. In other words, a deliberative network is the means by which they authorise governors to govern.

Rulesets: This brings us to the second component, rulesets, which refers to the need for a set of rules to govern the practical procedures of a pyramidal network. We refer to rulesets rather than rules to denote the flexibility of their use. Different rulesets might be used for different pyramidal structures in different circumstances or contexts (see Appendix II). As a design feature of our bespoke application, different rulesets could be applied on an ad hoc basis, depending on the constitution that governed the pyramid or pending democratic approval of a change in ruleset.

While constitutions outline the rights and obligations of various parties, as well as the goals of the underlying institution, rulesets determine the procedures that delegates and citizens use to ensure the democratic enactment of those goals. In this sense, while constitutions are dependent on the specific institution and the characteristics of its stakeholders, rulesets are far more general sets of procedures that determine how a pyramidal network is to function. Similar or identical rulesets are likely to govern most deliberative networks and democratic mechanisms, with only minor changes according to context. We have already made reference to the ability of citizens to leave and join groups at will, and the ability of citizens to recall delegates who fail to adequately perform. Without rules that moderate these capabilities, however, their indiscriminate use might render the pyramidal structure unstable and thus unworkable in practice. This, in turn, would make pyramidal democracies unstable and thus unfeasible[83]. Appropriate rulesets thus specify the day-to-day powers and responsibilities of citizens and delegates and help to ensure the general stability of the pyramid.

Remuneration: As Pivato (2009: 7) notes, delegates at higher tiers would play essentially the same role as lobbyists and legislative aids: "gathering and analyzing information, preparing and critiquing policy documents, advocating on behalf of various interest groups, and of course, briefing and consulting their constituents". The difference is that they would be doing these things with the full democratic legitimacy afforded to them by pyramidal deliberative networks.

At high tiers, then, and at the top-tier in particular, being a delegate would be a full-time job. In very large networks – comprising tens of thousands or millions of citizens – delegates at intermediate tiers would, similarly, require some level of remuneration if we expected them to properly fulfil their

[83] A case in point relates to the recall of top-tier delegates. It would be necessary, for a pyramidal democracy to remain stable, to make it more difficult rather than less difficult for delegates to be recalled. A system of governance would not operate if elected officials were constantly being replaced. As Ignazi (2017: 254) puts it, "excessive pressure on representatives may cause them to avoid unpopular though necessary actions and lead them to become megaphones for the changing wills of the time". The ruleset would thus specify these limitations; recall of top-tier delegates being possible only every six months, for example.

responsibilities. Finally, even a minimum level of remuneration for delegates at the lowest tiers might help to select more conscientious delegates and generally increase participation. Thus, delegates must be remunerated if pyramidal democracies – and large democratic mechanisms – are to be feasible.

In Appendix III we outline various formulas, based on Pivato (2009), for the remuneration of delegates. Without going into detail here, we can simply note that the costs of remunerating delegates are not excessive. Funding delegate-remuneration for a state-level network in the USA, comprising all 322 million citizens, would cost roughly $19.5 billion or 4% of the US defence budget. Instantiating a similar network in every country in the world would cost approximately $220 billion or 1% of the total value of international trade (Eurostat 2017). Hence, it would certainly be feasible to remunerate delegates for representing citizens in formal state-level networks. Our point, moreover, is that some form of remuneration would be necessarily in order to select for more conscientious delegates and to thereby ensure the stability of the pyramidal network.

To summarise, then, pyramidal networks become pyramidal democracies when top-tier delegates assume formal powers and responsibilities and when the pyramidal mechanism becomes the means by which citizens select the rules by which they are governed. Constitutions codify the scope of authority, the mechanisms of decision-making, and the civil rights and responsibilities of citizens. Rulesets specify the procedures by which citizens and delegates operate on a day-to-day basis, including provisions related to delegate recall that find an appropriate balance between flexibility and accountability. Remuneration is important in order to compensate delegates fairly for their time, to incentivise participation, and to ensure some level of quality. These components, then, form the basis for the transformation of deliberative networks into pyramidal democracies.

5.4.2 Modified Polyarchy

Recall that in Chapter 3 we outlined the eight conditions of Dahl's model of polyarchy. We noted that several of these conditions were seldom met in polities larger than a few hundred citizens, due to problems of scale and economy. Let us examine the conditions again:

During the pre-voting period:

1) Any member who perceives a set of alternatives, at least one of which he regards as preferable to any of the alternatives presently scheduled, can insert his preferred alternative(s) among those scheduled for voting.
2) All individuals possess identical information about the alternatives.

During the voting period:

3) Every member of the organization performs the acts we assume to constitute an expression of preference among the scheduled alternatives, e.g., voting.
4) In tabulating these expressions (votes), the weight assigned to each individual is identical.
5) The alternative with the greatest number of votes is declared the winning choice.

During the post-voting period:

6) Alternatives (leaders or policies) with the greatest number of votes displace any alternatives (leaders or policies) with fewer votes.
7) The orders of elected officials are executed.

During the inter-election period:

8.1) Either all inter-election decisions are subordinate or executory to those arrived at during the election stage, i.e., elections are, in a sense, controlling

8.2) Or new decisions during the inter-election period are governed by the preceding seven conditions, operating, however, under rather different institutional circumstances

8.3) Or both.

As we noted in Chapter 3, the key problems are with conditions 1,2 and 8. It is simply not possible for every citizen to insert their preferred alternatives into the decision-making process, nor is it generally possible to provide all citizens with identical information. Similarly, it seems unfeasible to expect that the inter-election decisions of elected officials could be subordinated to the preferences of citizens; officials cannot spend every waking hour listening to citizens, and citizens cannot spend every waking hour queuing up to speak to their officials.

We might immediately see, however, that these conditions can be met by means of deliberative networks. When citizens engage in compression, they have the opportunity to express any alternative by means of solution-creation and this alternative thus becomes scheduled for voting. There is a limitation – in the sense that every citizen in the network cannot vote on the solution of every other citizen – but we do not consider this an unreasonable restriction. Compression, therefore, goes some way towards realising the first condition of polyarchy.

Recall, also, that we might incentivise some citizens to take on the role of researcher, and that all the researchers in the deliberative network might, themselves, be organised into a small pyramidal network. It is the job of researchers – as well as citizens more generally – to provide balanced information on the costs and benefits of various alternatives. Where deliberative networks are large,

then the job of the individual researcher is much reduced[84]. This division of labour suggests the feasibility of providing salient, non-partisan, and accurate information on all alternatives. Where deliberative networks were formalised into pyramidal networks, and delegates at higher tiers were compensated as full-time representatives of citizens, then the provision of identical information on all alternatives may become even more assured. We might see, then, how deliberative networks might go some way towards realising the second condition of polyarchy.

Finally, condition eight might also be met by means of deliberative networks. As Dahl (1956: 73) notes, if elections were continuous – like markets – then there would be no need for the eighth condition. The previous seven conditions would form a scaffold for an iterative cycle of preference articulation or decision-making, allowing citizens to apply pressure on officials or collectively adapt and modify policy themselves. This is exactly what deliberative networks might allow. Depending on the expectation of citizens themselves[85], the formation of delegate groups at all tiers allows for the seamless communication of citizen preferences to decision-makers at the top of the pyramidal network. Where decisions were complex, or where the elected official was unsure of her mandate, she might use compression or voting mechanisms to both keep her constituents informed and to generate a mandate for one or other course of action. When elected officials failed to take the preferences of citizens fully into account, then they would be liable to be recalled. In this sense, then, deliberative networks might realise the eighth condition of polyarchy.

Thus, we might see how deliberative networks, when forming the basis for pyramidal democracies, might enable the eight conditions of polyarchy to be more fully met. If we accept that the eight conditions approximate the structure of most political systems, then we can see how deliberative networks might be used to 'democratise' such political systems in a way that reconciled polyarchy with a participatory model of democracy.

5.4.3 Intra-Party Democracy, A Popular House, and Distributed Government

In Chapter 3 we noted a fundamental problem with the market-based equilibrium model of democracy: that it engendered an oligopolistic party system and thus a tendency towards party

[84] Recall that, due in part to the epistemic functions of deliberation, the more people we have working on a task, the more accurate the outcome of that task is likely to be. In this sense, then, crowdsourcing information by means of large deliberative networks would likely result in more accurate and balanced information.
[85] Some citizens may expect delegates to be trustees and some may expect delegates to be representatives; i.e. some may expect to be fully included in decision-making, while others might expect that the delegate make the majority of decisions herself. In the following chapter we deal with this issue more fully when we examine theories of political representation.

cartels. We noted as well that this state of affairs engendered, in turn, various problems: short-term and self-referential thinking, weak multilateralism, elite capture, etc. Thus, many parties have become "Leviathans with clay feet"; powerful in the political arena but weak in the "eyes of public opinion" (Ignazi 2017: 262). We suggest here that we might solve these problems by means of democratic mechanisms and pyramidal democracies; thereby instantiating intra-party democracy and democratising the party system. If the democratisation of the party system is feasible, then various new political structures may also be feasible: distributed politics, distributed government, the introduction of a Popular Branch of government, and mandatory participation in state-level networks.

Intra-Party Democracy: Drawing from the literature, Ignazi (2017: 247-248) identifies four "knights" that might come to the rescue of political parties; i.e. help instantiate intra-party democracy and revitalise them in the eyes of the public. These four knights, or suggested requirements, are: inclusion, deliberation, diffusion, and pluralism. By inclusion we mean the right of party members to elect leaders and choose party candidates directly. By deliberation we mean the enforcement of an internal deliberative process by which party policies are chosen. By diffusion we mean the "horizontal and vertical diffusion of the decision-making power among different intraparty layers and actors". By pluralism we mean a guarantee of minority rights within the party[86].

As we might immediately see, deliberative networks are well positioned to meet these requirements. Pyramidal networks are inherently inclusive, with top-tier delegates automatically selected, ostensibly, as party leaders and candidates. Even if top-tier delegates were separate from candidates, the pyramidal structure would allow members to democratically select candidates by means of voting, with or without deliberation. In terms of deliberation, pyramidal networks, of course, would automatically facilitate internal deliberative processes. In terms of diffusion, the pyramidal network would automatically organise party members into constitutive layers (tiers), with members at higher tiers ostensibly taking on greater responsibilities. Moreover, wheel configurations would allow for more complex arrangements, allowing, for example, the merging together of all local party branches into a single configuration. Pyramidal networks, therefore, would enable the "horizontal and vertical diffusion of the decision-making power among different intraparty layers and actors". Finally, in terms of pluralism and minority rights, the constitution and ruleset governing the party pyramidal network might be configured to allow for special procedures to ensure pluralism, like a right to veto.

[86] It is not clear from Ignazi or his sources, what exactly this would entail. For our purposes, we would hope that the deliberative spaces inherent to deliberative networks would help citizens to take minority preferences into account. Where this failed, then, it might be necessary to codify some kind of mechanism – possibly a veto – into the constitution of the party. We do not speculate on the specifics here, however.

In essence, then, if pyramidal networks were to be used to organise the members of a political party, then inclusion, deliberation, diffusion, and pluralism would, to some extent, automatically arise. As Ignazi (2017: 240) argues, broad appeals to party membership – by means of, for example, a referendum – have generally been used as a weapon: by factions in order to legitimise a challenge to the leadership, or by the leadership to "write off" any constraint from other party actors. In a pyramidal network, however, leaders and factions would derive directly from the membership; i.e. any differences of opinion, in terms of policy and leadership, would be more likely to diffuse through the layers of the pyramidal structure, and thus be resolved either through deliberation or by means of the restructuring of the pyramid.

We would suggest, then, that pyramidal networks might be a means to revitalise political parties by means of instantiating inclusion, deliberation, diffusion and pluralism. Under these conditions, top-tier delegates – selected organically from the base of the party – might become party leaders and candidates. Wheel configurations, moreover, would allow multiple local branches of the party an equal seat at the table. Where differences of opinion existed, these would be represented by voting blocs within the pyramidal structure and, ideally, resolved by means of deliberation and compromise.

The Party System: We noted also in Chapter 2 that the emergence of new parties is constrained under oligopolistic party systems. If voters have little incentive to keep themselves politically informed, then they will rationally opt for low-cost information in the form of party ideologies. New parties often need significant resources to communicate their ideology to potential voters, militating against the formation of major new parties.

Pyramidal networks and deliberative mechanisms might help to solve this problem by providing a structure by which new parties could form, ideally in an inclusive, incremental and organic manner. In this sense, political parties might form organically, based on a set of ideas or a kernel of dissent, gradually evolving a party manifesto by means of incremental deliberation, and gradually increasing in membership as citizens at the base of the pyramid convinced more citizens to become involved. Similarly, the citizens of a pre-existing democratic mechanism – perhaps formed originally to deal with only a single problem or issue – might decide, over time, to transform itself into a political party, harnessing its pre-existing organisational capacities and delegate structures to emerge more or less 'fully-formed' as a political party. As we suggest in Chapter 7, broad configurations might enable two or more democratic mechanisms – especially those based on social movements, trade unions, and civil society groups – to combine, independently of geographic location, and thus form the foundation for transnational political parties: single parties that contested local and national elections in more than one country.

What we are suggesting here, then, is that pyramidal democracy might enable the rapid formation of new parties and thus cause the oligarchic party system, that has engendered party cartels, to be dismantled. The formation of new parties, in combination with the introduction of intra-party democracy in pre-existing parties, might go some way towards shaking up the entrenched 'left-right' unidimensional scale of political division (more tax/less tax, more government/less government, etc) that has helped to prevent meaningful competition and has thus eviscerated the capacity, in political parties, for effective problem solving.

Distributed Politics: If it were relatively easy for new political parties to form by means of pyramidal networks then it follows, also, that new political entrepreneurs might also arise due to the support of an underlying network. In this sense, then, nothing would prevent 'independents' from contesting elections based on the support of an underlying network of citizens. In this way, every citizen who comprised the network would, ostensibly, be a true supporter, pledging to vote for the candidate in question. Based on the size of the base of the pyramid, the politician and her supporters would thus be able to calculate, fairly precisely, the chances of election victory.

Moreover, the pyramidal network would bind constituents to the candidate, with top-tier delegates becoming not only the successful politician's aids and policy advisors, but also direct links to the concerns and preferences of constituent voters. Although the successfully-elected politician may have only limited political resources to disburse, it follows that the pyramidal network may be a means by which voters with plural interests might find compromise between competing policies or projects. Similarly, the successful 'pyramidal politician' would be disincentivised from making mutually exclusive promises and would benefit, instead, from facilitating compromise on policies, not after the election, but prior to it. The more realistic the goals and policy objectives of the pyramidal politician were, and the better her track record over time, the larger her network of supporters would likely become.

If the emergence of the pyramidal politician is feasible, then it might follow that her emergence signals the obsolescence of the political party, although we should be very hesitant to make any hard and fast predictions on this score. Our reasoning, however, is such: The political party emerged as a direct result of the expansion of suffrage, meaning that governments needed to become *responsive* as well *responsible* to citizens. The party thus arose as a means of channelling the preferences of citizens to those in positions of power. Parties meant competition for citizen support, which required resources, and thus the centralised party machine arose to provide those resources. The party machine, however, meant that party leaders exercised significant power over individual MPs who relied on the machine.

This power, in turn, enabled the party to control, to some extent, the vote of MPs and thus push through its policies.

If it were possible for politicians to become elected without the resources of central party machines, however, then the logic of the party system begins to disintegrate. The greater the number of independent politicians in the legislature, the less power the party machine would wield. At a certain threshold, then, it seems reasonable that the party would simply disintegrate, or, more likely, transform its functions in some way.

Distributed Government: The possibility of distributed politics opens up the possibility of distributed government. If it were possible for politicians to become independent from the party machine, then it would be possible for them to compete on the basis of specific portfolios. In this sense, we might have separate political candidates for each of the major ministerial portfolios: energy, finance, the environment, trade, education, etc.

Thus, rather than a government – i.e. party – assuming power at four-year intervals, we might instead implement a distributed approach to government where politicians compete within the framework of pyramidal networks that comprise citizens who have some interest or connection with the portfolio in question. Citizens interested in sport, therefore, might comprise a network that selected the minister for sport. Moreover, the top-tier delegates in each 'portfolio' network would ensure that the preferences of citizens were appropriately represented. Policy-consistency would be achieved by means of debate and compromise amongst the ministers and top-tier delegates who, together, comprised the various portfolio networks.

If government budgets were determined more or less directly by participatory budgeting[87], then a direct link would be established between the financial resources of the state and the preferences of society. This would mean that citizens would, essentially, be able to allocate their taxes to those projects or areas of government that they thought most beneficial. This might, of course, engender various problems if citizens did not allocate resources 'properly'; i.e. underinvested in vital infrastructure, for example. It would remain up to politicians and top-tier delegates to influence the manner in which citizens distributed resources.

[87] Participatory budgeting, as we see in Chapter 8, is a process where citizens select and allocate public funds to the public projects they think most beneficial or desirable. A national participatory budgeting system would mean that citizens would be able to allocate, on a per-capita basis, a share of the government's discretionary budget to whatever ministries or projects they thought most beneficial or desirable. In the United States, this would entail every citizen being able to allocate about $3400, in any sequence of denominations, to any number of ministries or projects.

Although a promising idea, we do not fully explore the desirability or feasibility of distributed government here. We should merely take note that the broad-based adoption of pyramidal networks makes possible new systems of government or methods of governance.

A Popular Branch: Pivato draws our attention to Leib (2004) who suggests that a deliberative 'Popular Branch' of government could be formed to augment, in the United States, the House of Representatives and the Senate. In Leib's formulation, the Popular Branch would have the power to formulate legislation, but such legislation would only be implemented if it were ratified by the legislature. Moreover, while Leib suggests that a popular branch might be formed by random periodic selection – similar to compulsory jury duty – we might immediately see how pyramidal networks would provide a more systematic, coherent and representative approach. In this sense, the top-tier delegates of a state-level pyramidal network might form a popular branch of government. Over time, the powers of such a branch might then be codified into law.

We have already noted (Appendix III) that the cost of funding a state-level pyramidal network ranges in cost between $30 and $70 per citizen, depending on the average national wage of the country in question. In the United States, for example, this cost was $60.5 per citizen, or 1.7% of the discretionary portion of the Federal budget. Thus, given that the cost is relatively insignificant, we might see how a state-level pyramidal network might be the means by which to instantiate, over time, a popular branch of government. Top-tier delegates – or some wheel configuration of top-tier delegates – could thus represent citizens in such a branch, with a chain of delegates automatically linking every single citizen to one or more top-tier delegates.

Once such a branch was established and had a track record of success, it might be possible to gradually increase its legislative powers. Pivato (2009: 25) suggests that the popular branch gain power incrementally and gradually over time, based on a predetermined formula. Thus, in its first year of operation, the legislative branch could overrule the popular branch with a simple 50% majority. In each subsequent year, however, this requirement might increase by 0.5%, such that in 33 years-time, the legislative branch would require a 66.6% majority in order to overrule the popular branch.

A popular branch, however, need not wield direct power or make laws itself. It could be a "Chamber of Discourses" (Dryzek and Niemeyer 2008) where top-tier delegates represented different perspectives on issues and problems, rather than citizens themselves. Such a chamber might be advisory in nature, or it might perhaps hold veto power over the laws and procedures of the legislative branch. We could, in this way, employ Pivato's formula in reverse. In its first year, the popular – or discursive – branch might require a 90% majority in order to veto a legislative decision, but, with each subsequent year, this requirement would become less stringent.

Whatever the technical details might be, we might see how popular branches of government might be formed by means of state-level pyramidal networks. If the funding of state-level networks derived from international taxes on financial transactions or capital, moreover, then such networks might be rapidly formed. State-level networks and popular branches of government, finally, might be linked together in such a way as to create a single popular branch at the transnational level of the United Nations[88].

Compulsory Participation: If state-level networks were to be formed in countries across the world, and these networks were to form the foundation of popular branches of government with formal or informal powers, then it might be appropriate to make some threshold of participation in such networks mandatory. We do not mean, of course, that citizens would be compelled to deliberate, only that they would be legally obligated, or heavily incentivised[89], to register on our bespoke application – or the national version thereof – and form part of a group at the base of the pyramid. Whether or not they participated from there on out would be their own business. It would, however, be mandatory to at least register and join a group. As Birch (2013: 1) notes, 29 countries in the world already legally oblige citizens to vote, thus providing a precedent for compulsory participation.

There are four key reasons why we might want to obligate citizens to participate in state-level networks. First, compulsory registration might enable the voices of 'non-aligned' citizens, those who supported no party, to have a voice in the governance of the state. As Bakardjieva (2007: 133) argues, citizenship is a complex and dynamic construct rather than a binary quality; it is not something we either possess or do not possess, but something we construct and co-create with others. Moreover, citizens express their subjective positions and political nature through participation (or non-participation) and thus actively construct their civic identity. Compulsory registration might then facilitate non-participating citizens a channel by which to express, if they so desired, why they are disinclined to participate in elections or party politics[90]. Second, compulsory registration may engender increased participation on the part of citizens, leading in turn to the formation of new niche parties within the state-level network. Third, if participatory budgeting became widely adopted, at the local, national and global level, as we suggest in Chapter 8, then compulsory registration would be the means by which citizen identities could be securely, but pseudonymously, linked to the distribution of

[88] We deal with these propositions in Chapters 6 and 7.

[89] Citizens might be liable to small fines if they failed to register, or, more feasibly, receive small tax breaks as a benefit of registration.

[90] There is also the possibility of integrating a non-aligned bloc of delegates into the legislature, in direct proportion to voter turnout. In this sense, if voter turnout were 70% then only 70% of the seats in the legislature would be apportioned to party candidates and the remaining 30% to non-aligned delegates. This might help to ensure the representation of non-party aligned voices in the governance of the state. I have a feeling that this idea has been expressed somewhere in the literature, but I cannot recall where or by whom.

resources. Therefore, there may good reason to legally oblige citizens to participate in state-level networks. Finally, some measure of compulsory or incentivised participation may align well with the suggestion for an annual "deliberation day" (Ackerman and Fishkin 2003) where all citizens are encouraged to deliberate with one another by participating in jamboree-style deliberative events organised within their town or city. Compulsory registration might help to drive participation in a digital deliberation day.

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In conclusion, a deliberative network or democratic mechanism becomes a pyramidal democracy when top-tier delegates assume formal powers and responsibilities. We have focussed primarily on pyramidal democracy in the political and governmental sphere, but the same logic might apply to the firm or to public institutions. The key idea is that, by means of constitutions, rulesets, and remuneration, the pyramidal network is stabilised and begins to form the basis for the governance or self-governance of citizens. This idea is further captured in the sense that deliberative networks might be used to reconcile polyarchy with a participatory model of democracy; i.e. democratise the eight conditions that Dahl employs to describe a formal political system of decision-making. Deliberative networks and democratic mechanisms might therefore be the means of implementing intra-party democracy, for democratising the party system, and for developing new systems of governance.

5.5 Conclusion

In the previous chapter we outlined the design criteria required for enabling small groups of citizens to deliberate in an online environment. In this chapter we have outlined how those deliberative microcosms are connected together by means of scale-independent pyramidal networks. Compression is the means by which citizens reach compromise and merge together their solutions. When the deliberations at all tiers are connected together and channelled up the pyramid by means of an iterative process of compression and delegate selection, then a pyramidal network becomes a pyramidal deliberative network. Such networks, we suggest, are effectively scale-independent because they operate in the same ways regardless of how many thousands or millions of citizens comprise the base of the pyramid. Pyramidal deliberative networks are thus the means by which mass engagement might be reconciled with deliberative democracy.

Pyramidal networks remain theoretical constructs, however, until they are used by citizens to project power by making social demands. Pyramidal networks are thus transformed into democratic mechanisms when issue-publics use pyramidal networks to select and authorise top-tier delegates to

engage in open communication with authorities on their behalf. Wheel configurations are the means by which to represent disparate parties within the same democratic mechanism. The broad-based adoption of democratic mechanisms throughout society may be the means by which to democratise the public sphere; i.e. empower civil society to consistently project power. One possible result of the democratisation of the public sphere is the development of broad configurations – combinations of pyramidal networks from all spheres of society orientated towards advocating for the solution of a single problem.

Formal pyramidal democracies are formed when top-tier delegates assume formal powers and responsibilities. Local government would be a pyramidal democracy, for example, in the event that the top-tier delegates of a local pyramidal network became elected officials. Formal pyramidal democracies may open up opportunities for democratic innovations, like intra-party democracy, the democratisation of the party system, and the empowerment of new kinds of political entrepreneurs.

We have thus developed four foundational concepts in this chapter: pyramidal networks, pyramidal deliberative networks, democratic mechanisms, and formal pyramidal democracies. Each concept is a more developed version of the previous concept. The progression from pyramidal networks to pyramidal democracy thus embodies a set of conceptual stepping stones that help to explain how we might transition from the status quo to a state of affairs where mass citizen engagement is feasible.

We have not dealt, however, with two major issues: the problem of participation and the problem of tyranny. First, what would incentivise citizens to participate in pyramidal networks to such an extent as to make them truly effective? Second, if they did participate to this extent, what dangers exist for tyrannies of the majority or co-optation of the deliberative process by vested interests. We deal with these problems in the next chapter.

6. Democratic Mechanisms and Pyramidal Democracy

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6.1 Introduction

In the previous chapter we outlined the progression from pyramidal deliberative networks to full-blown formal pyramidal democracies. While there is an internal logic to this progression, the concept of pyramidal democracy remains highly theoretical; i.e. we did not provide an argument as to why we might expect this progression to occur or describe the mechanism that would actually make pyramidal democracy work in practice. More to the point, we did not deal with the key problems of participation and tyranny: why would citizens bother to participate, and, if they did, what would prevent vested interests from co-opting the deliberative process? In this chapter we respond to these problems[91].

[91] In Appendix IV we also deal with various other problems and concerns that arise when considering democratic and deliberative theory in light of pyramidal democracy. These problems include the role of social

First – and in order to lay a foundation for dealing with the problem of participation – we outline the underlying mechanisms in pyramidal democracy that make it work in practice. Key among these mechanisms are the four characteristics of pyramidal networks – reflexive legitimacy, obtrusiveness, uniformity, and modularity – that would enable citizens to project power by means of democratic mechanisms. If our assumptions about these characteristics are correct, then pyramidal democracy is the means by which citizens could effectively exercise 'voice' in all socio-economic institutions comprised by pyramidal networks. Finally, this process of exercising voice is envisaged to engender a process of 'democratic structuration' whereby citizens become accustomed to developing and projecting their democratic agency. Taken together, then, these mechanisms undergird our argument as to why pyramidal democracy would be effective if a requisite threshold of participation were achieved.

Second, we deal with the problem of participation. We note that pyramidal networks distribute the intensity of distribution both vertically and horizontally. This means that, in order for pyramidal democracy to be successful, it is not necessary that all citizens participate at all times. In fact, the vast majority of pyramidal networks are likely to comprise citizens who exhibit low levels of participation, but this fact does not necessarily work against the effectiveness of such networks so long as top-tier delegates continue to operate with the full support of citizens at the base of the network. More active participation would result, however, if citizens were educated for participation. Moreover, various precedents exist that indicate the feasibility of generating the mass online participation necessary prove the effectiveness of pyramidal networks. Thus, taken together, these factors speak to the possibility of resolving the problem of participation.

Third, we deal with the problem of tyranny and co-optation. The possibility of a tyranny of the majority remains the single biggest concern when it comes to pyramidal democracy. Just like in liberal democracies today, however, constitutional checks and balances work to prevent such tyrannies. Where such protections failed, however, we suggest that various factors might make a tyranny of the majority unsustainable in the medium-term. When it comes to the co-optation of pyramidal networks, the sheer scale of pyramidal networks works against the feasibility of vested interests successfully hijacking the deliberative process for any length of time. In this sense, we suggest that the potential costs of overt co-optation are likely to outweigh the potential costs of cooperation. Thus, although

choice theory, the various criticisms levelled against deliberative democracy theory, the relationship between deliberative theory and pyramidal democracy, and the relation between pyramidal democracy and political representation, ideology, false consciousness, consent, and consensus. We also outline the differences and similarities between pyramidal democracy and liquid democracy – an alternative method of reconciling democracy with mass engagement by means of a bespoke application.

the potential for tyranny and co-optation remains significant, various factors may help to reduce this potential over time.

This chapter concludes the main argument in this sequence, that it may be feasible to reconcile mass engagement with deliberative democracy by means of a bespoke application. In the chapters that follow, we outline how the broad-based adoption of pyramidal networks throughout society might enable the resolution of the interrelated crises of the 21st century – primarily by enabling citizens to implement a new schema of global governance and by introducing policies that would help to democratise the global economy.

6.2 The Underlying Mechanisms in Pyramidal Democracy

In this section, our key objective is to identify the underlying mechanisms that would make democratic mechanisms and pyramidal democracies effective. An understanding of these mechanisms supports our arguments, in the following section, for what might drive broad-based participation in pyramidal networks. The primary mechanism is the four underlying characteristics of pyramidal networks: reflexive legitimacy, obtrusiveness, uniformity, and modularity. Taken together, these characteristics enable citizens to project power by engaging in open communication with points of authority.

Processes of open communication, in turn, have the potential to entrench 'voice' in all those social institutions where citizens became organised by means of pyramidal networks. A systematic means of realising 'voice', rather than 'exit', would mean that institutions and firms would increasingly receive clear signals about market and social failures, signals that are usually lost because citizens choose to exit the institution rather than to engage with its leadership.

The more that citizens became acculturated to exercising voice, by means of pyramidal networks, within social institutions – the firm, the state, the civil society organisation – the more entrenched and effective such pyramidal networks might become. In this sense, we suggest that pyramidal networks structurate – organise – citizens in a way that enables them to develop their democratic agency. The more that citizens became used to developing and using such agency, the more entrenched and effective pyramidal networks would likely become.

Thus, although we are not dealing in this section directly with the problem of participation, we should be able to see why participation in pyramidal networks – over certain thresholds – would be effective. This assumption of efficacy is an important first step in evaluating the problems of participation and tyranny.

6.2.1 Social Power, Social Demands, and the Characteristics of Pyramidal Networks

There are few concepts more problematic and contested than that of power, and our intention is certainly not to delve too deeply into theories of power. Instead we want to establish a simple trichotomy of power – economic, state, and social – and suggest how and why we might expect pyramidal networks, and democratic mechanisms in particular, to enable citizens to project power. Our primary claim is that pyramidal networks have certain characteristics – reflexive legitimacy, obtrusiveness, uniformity, and modularity – that enable the democratic agency of citizens to be channelled into coherent social demands. We begin with a brief outline of the idea of power.

We are interested in three types of power[92]: economic, state and social. Economic power is control over economic resources. State power is control over rule-making and rule-enforcing over a given territory. Social power is the "capacity to mobilize people for voluntary collective actions of various sorts" (Wright 2010: 113). In other word, you can bribe people, force people, or convince people (ibid). Democratic mechanisms project social power, we contend, because deliberative networks enable citizens to aggregate their ideas, concerns, or preferences in a meaningful and transparent manner. Deliberation and aggregation by means of compression, then, is the "voluntary collective action" that generates the social power of citizens. This power generates, in turn, what we can call a 'social demand'[93] for the implementation of new policy or the modification of existing policy; a social demand, essentially, for economic power or state power to be used or deployed in a way that takes the interests of citizens more fully into account.

[92] We might define power quite simply, along with Wright (2010: 111), as the capacity of actors to accomplish things in the world. This definition is deliberately broad and says nothing about the underlying structures that make it more or less difficult for a given actor to accomplish things. Apart from a simple one-dimensional view of power – where the interests of A and B are in conflict and A has power over B when A's interests win out over B's – there are at least two additional "faces" or dimensions to power (Lukes 2005). Two-dimensional power, after Bachrach and Baratz (1970), examines how power can "suffocate" interests both before they are voiced and before they gain access to the "relevant decision-making arena". Similarly, when interests do reach the decision-making arena, they can be "maimed or destroyed" in the decision-implementing stage of the policy process (Bachrach and Baratz 1970: 44). A third-dimensional view of power examines how ideology or social structure keeps issues out of politics without any particular individual exercising power to do so. We return briefly to these different dimensions of power later on. For now, however, our simple definition of power – as the capacity of actors to accomplish things – will suffice.

[93] We use the term 'social demand' rather than 'political demand' for various reasons. First, the word 'social' indicates the source of the power by which the demand is generated. Second, demands are likely to relate often to the *social demand* for a good or service, in the sense of *supply* and *demand*. For example, although there is high social demand for excellent public education, there is not sufficient supply of such education. Citizens might then use democratic mechanisms, engaging with educational institutions and government, in order to make a social demand for better public education. We use the term social demand to mean political demand, then, but we also suggest that demands are likely to be often linked in some way to the supply and demand for goods and services.

But why should authorities – those who exercise economic or state power – engage with delegates or take the social demands of citizens seriously? If we want to claim that deliberative mechanisms enable citizens to project power, then we need to explain why exactly this might be. We suggest that pyramidal networks and democratic mechanisms have four characteristics that might enable them, intrinsically, to project social power: reflexive legitimacy, obtrusiveness, uniformity, and modularity.

Reflexive legitimacy: Legitimacy – one of the six bases of social power identified by French and Raven (1959, 1965) – is the primary source by which pyramidal networks project power. The key idea here is that pyramidal networks derive legitimacy from two factors: total size and total activeness. Thus, the larger a network and the more active and engaged its citizens, all things being equal, the more legitimate it is likely to be.

The power derived from legitimacy is itself a function of the internalisation and acceptance of social norms by citizens. Politicians have legitimate power, for example, because citizens accept that elections are a legitimate way of electing leaders – and not necessarily because electoral systems are enshrined in law. In this sense, then, pyramidal networks might project social power because citizens came to see pyramidal networks as a legitimate means of organising *in order to* project social power. The larger and more active the citizens in a pyramidal network, then the more legitimate it would be and the more social power it could project.

We call this type of legitimacy reflexive because there is a circular relationship between cause and effect: If citizens *generally* believed that pyramidal networks were a legitimate means of organising, then it follows that they would also expect the social demands arising from networks to *generally* be legitimate. The more that network-derived social demands were successfully met, the more substantial the belief in legitimacy would become. Note, moreover, that this legitimacy is generated independently of both economic and state power; i.e. citizens do not need the approval of the state or of elites in order to form large and active pyramidal networks capable of projecting social power. Thus, as long as citizens believed pyramidal networks to be a legitimate means by which to organise, then such networks would be legitimate and thus be a legitimate means by which to make social demands. We can think of reflexive legitimacy, therefore, in terms of Augustes Comte's dictum: "authority is derived from concurrence and not concurrence from authority" (cited in Partridge 1971: 82).

Obtrusiveness: By obtrusiveness[94] we mean that, if a pyramid is suitably large and/or active, there are few strategies available by which respondents – points of authority – can avoid engaging with top-tier

[94] We introduce the term 'obtrusiveness' here as a technical term or a 'term of art'. To obtrude means to "impose or force something on someone in an unwelcome way". We are not trying to emphasise, however,

delegates. If an organisation – a corporation and its spokespeople, for example – were to ignore calls to engage in open communication, then it would risk increasing the activity and belligerence of the citizens who comprised the deliberative network in question. This might, in turn, lead to an increase in the size of the pyramid as new citizens joined the network in order to force the organisation to engage. The plausibility of this assumption correlates with the size of the network in question; small networks would be easier to ignore, and large networks more difficult to ignore.

As we will see shortly, the modularity of pyramidal networks means that they can be rapidly combined into larger configurations. This possibility means, in turn, that a strategy of non-cooperation could risk turning a single network into a configuration of networks. Obtrusiveness is thus a characteristic of pyramidal networks that enables them to project social power: If a network is large and active then it cannot be safely ignored. If it cannot be ignored, then it must be engaged with. If it must be engaged with, then it *de facto* projects a form of social power. We cannot, of course, provide any evidence for the claim that obtrusiveness would enable the projection of power in this way. It does, however, seem plausible, especially when one considers the possibility of large pyramidal networks forming that were constituted by tens of thousands or millions of citizens.

The idea of obtrusiveness, however, does not imply that the projection of power will always be successful. If top-tier delegates abuse their power and cause the network to lose legitimacy in the eyes of citizens and the wider community, then respondents would be able to safely ignore or co-opt it. Similarly, obtrusiveness in no way prevents respondents from subverting open communication or otherwise engaging in bad faith. The key claim is simply that, all things being equal, democratic mechanisms project power because respondents would have few options except to engage with them.

Uniformity: Although different pyramidal networks might be configured according to different rulesets or governed according to different constitutions, any given network functions in identical ways to any other given network. The processes of group formation and delegate selection, for example, would operate more or less identically whether the network was deployed at the level of a school, at the level of a firm, or at the level of a city. Compression – whether purely text-based or whether including face-to-face deliberation – would be, similarly, a relatively uniform process across different networks and in different contexts. The principle that undergirds open-communication,

the negative connotation of 'unwelcome', but rather the fact that – under conditions where the respondent is unwilling – the network is capable of imposing or forcing engagement. So, although the phrasing we have chosen is not ideal, no other term seems to speak to the essence of what we mean. By obtrusiveness we are really speaking about the 'unignorability' of large democratic mechanisms.

finally, would be identical across different networks, although such communication would differ widely in different contexts.

Uniformity, we suggest, enhances legitimacy in at least two ways. First, by accelerating the spread of networks from one sphere to another; i.e. uniformity means low transaction costs in adopting pyramidal networks in one sphere if citizens were familiar with them in another sphere. Second, by making legitimacy transitive; i.e. if pyramidal networks enabled democratic agency and the projection of social power at one site, then it follows that they would enable democratic agency and the projection of social power at another site. If we accepted pyramidal networks as legitimate at the level of local government, for example, it follows then that we would accept them as legitimate at the level of the state. In other words, if pyramidal networks were *generally* legitimate in one sphere, they are likely to be *generally* legitimate in all other spheres. Thus, the uniformity of pyramidal networks accelerates their adoption and enhances their reflexive legitimacy.

Modularity: Pyramidal networks are infinitely scalable, can operate across multiple geographic boundaries, and can be combined into different configurations in a multitude of different ways. This enables a certain degree of modularity in the sense that pyramidal networks – like Lego blocks – can be combined and recombined according to different purposes or scenarios. This has at least two important implications. First, this makes it relatively simple to create very large configurations by combining a multitude of smaller networks or network configurations. Second, nothing prevents networks that formed on the basis of one problem or issue-public operating in sites related to a second problem or issue-public.

Consider, for example, a pyramidal network deployed in a school in order to elect a student representative council (SRC). Modularity allows for school-specific networks to be combined into wheel configurations at the district-level, which could subsequently be combined into configurations at the provincial-level, then the state-level, then the regional-level, and then the global-level. If our assumption is correct that larger networks engender greater reflexive legitimacy and greater social power, then modularity makes it more feasible for democratic mechanisms to project social power by enabling the creation of larger and larger networks. In this sense, then, while a district-level SRC-based network configuration may have only limited legitimacy, a district-level network *integrated into* a provincial or state network would likely enjoy significantly greater legitimacy. Modularity, therefore, might enhance the legitimacy, and thus social power, of individual networks that were part of larger configurations.

Regarding the second implication, we can see also that nothing would prevent a provincial- or state-level SRC-based network configuration from joining with configurations of networks concerned with

issues other than education, provided the constituent members of the network agreed that the non-education issue was an interest that was widely shared. In this sense, a provincial- or state-level SRC-based configuration might weigh in on issues like animal welfare, or environmental sustainability, or conflicts in the Middle East. The same line of reasoning would apply to all other networks. Nothing would prevent, for example, a trade union network from joining configurations that supported human rights, or that governed an NGO, or that supported a political candidate. Modularity might, therefore, increase the legitimacy and social power of networks, and thus allow them to project power in areas unrelated to their core function.

To summarise, then, we can define social power simply as the "capacity to mobilize people for voluntary collective actions of various sorts". This collective action would generally result in a 'social demand' for the implementation of new policy or the modification of existing policy; a demand, essentially, for economic power or state power to be used or deployed in a way that takes the interests of citizens more fully into account. Compression by means of deliberative networks is the means by which social demands are developed, and top-tier delegates are the means by which social demands are communicated to points of authority. Our key contention here is that the characteristics of democratic mechanisms – reflexive legitimacy, obtrusiveness, uniformity and modularity – enable the projection of social power because points of authority have few options but to engage with citizens and respond meaningfully to their social demands. If they do not, then the uniformity and modularity of networks makes it more feasible for the deliberative network in question to rapidly expand, increasing its reflexive legitimacy and making it increasingly more difficult for the point of authority not to engage. Thus, if our assumptions regarding the characteristics of democratic mechanisms are correct, then we might begin to understand the means by which they might project social power.

6.2.2 Voice and Exit

We can now zero in on a core function of pyramidal networks and democratic mechanisms: the broad-based instantiation of "voice"[95] across all spheres of society. In 1970, Albert Hirschman developed a model of organisations based on two key concepts: voice and exit. When an organisation – a firm or a political organisation, for example – begins to fail – i.e. the quality of its goods or services deteriorates – consumers, or members, can draw attention to this failure in one of two ways: by voice, expressing dissatisfaction directly to management or some authority with the power to sanction management, or by exit, no longer purchasing the goods or services of the firm, or ending participation by leaving

[95] We can define voice as "any attempt at all to change, rather than to escape from, an objectionable state of affairs, whether through individual or collective petition to the management directly in charge, through appeal to a higher authority with the intention of forcing a change in management, or through various types of actions and protests, including those that are meant to mobilize public opinion" (Hirschman 1970: 30).

the organisation. While exit generally belongs to economics, voice generally belongs to politics; i.e. voice is "political action par excellence" (Hirschman 1970: 15-16).

Whether citizens exercise either exit or voice is dependent on the "quality elasticity of demand": the degree to which citizens care or not whether quality has declined. It also depends, of course, on the degree to which exit or voice are viable options. If a firm is the only supplier of a good or service, then exit is not a viable option. Moreover, the level of effort that citizens deploy in using voice will be "in proportion to the advantage to be gained from a favorable outcome multiplied by the probability of influencing the outcome" (Edward Banfield, cited in Hirschman 1970: 39). Thus, the more beneficial the expected outcome and the greater the likelihood of success, the greater are the chances that citizens will employ voice rather than exit. Finally, there are many organisations in which exit is generally not an option: the family, the state, the church, for example. Voice is thus the primary means of addressing failure in such organisations, or, more importantly, when voice fails then exit can occur only by means of apathy or non-participation.

Hirschman's key insight is that, under certain conditions, the possibility of exit actually maintains a suboptimal level of quality, rather than incentivising authorities to address their failings. In the case of the firm, for example, no matter what the quality elasticity of demand might be, exit could "fail to cause any revenue loss to the individual firms *if the firm acquired new customers as it loses the old ones*" (26). This might occur when the quality deteriorates uniformly for firms in a given industry[96]. Under such conditions, customers who exit Firm A in disgust would patronise Firm B in the hopes that the quality would be better. But if it is not, and customers are simultaneously exiting Firm B in the hopes that quality will be better at Firm A, then no market signal is sent to management that an underlying problem exists. Under these conditions, exit does not provide management with an incentive to increase quality. Under these conditions, then, as Hirschman argues, the formation of a monopoly – merging all firms into one – may be desirable because then customers would have no option for exit, but only for voice. This would force citizens to use that option in order to increase quality, which it might do.

The same problem – of competition merely maintaining a non-optimum status quo – is also evident in competitive party-political systems (28). Citizens might change parties or switch their vote in response to poor outcomes, but, so long as votes and membership shift between a given number of parties, no signal exists for substantial reform. By nature of this problem, then, political parties have

[96] It might also occur simply when new products have faults or noxious side effects. So long as competing products have similar effects, and so long as consumers continue to shop around for a non-existent improved product, then there is no real incentive for any firm to improve the product. Competition in this situation is a "considerable convenience" to manufacturers and they may even collude in order to maintain this status quo.

considerable capacity to "divert what might otherwise be a revolutionary ground swell" into "tame discontent with the governing party". The fact that competing political parties sometimes offer "no real choice" is thus a source of both stability and incapacity in the political system.

Democratic mechanisms, however, might enable citizens to systematically express voice and thus send signals that lead to incremental increases in quality. Using the firm as an example, Hirschman (43) notes that…

> *"While structural constraints…are of undoubted importance in determining the balance of exit and voice for individual commodities, the propensity to resort to the voice option depends also on the general readiness of a population to complain and on the invention of such institutions and mechanisms as can communicate complaints cheaply and effectively" (43, original emphasis).*

Based, in part, on the four characteristics of pyramidal networks, we might see how democratic mechanisms might enable citizens to communicate complaints cheaply and effectively. Because the level of effort citizens deploy in using voice is proportional to the ease and expected advantage of doing so, pyramidal networks – if our assumptions are correct – might make the articulation of voice radically more viable and appealing. Hirschman notes, moreover, that "with a given potential for articulation" the actual level of voice "feeds on *in*elastic demand, or on the lack of opportunity for exit" (34). In organisations where exit is not an option – the state, for example – democratic mechanisms might then be particularly effective at channelling voice. In short, the rational citizen may participate in democratic mechanisms because complaints can be communicated cheaply and effectively.

6.2.3 Democratic Agency and Democratic Structuration

We have hopefully now laid a solid foundation for understanding how and why we would expect deliberative networks and democratic mechanisms to be effective; i.e. how and why we would expect them to enable citizens to project power. Undergirding this expectation of projecting power is the idea of systematically enabling citizens to develop their own democratic agency; i.e. acculturating them to developing and projecting their 'voice'. In terms of democratic theory, then, our claim is that pyramidal networks would be effective because they structurate – organise – society in a way that turns citizens into democratic agents; i.e. citizens capable of expressing needs and taking action to meet those needs. While the short-term effectiveness of democratic mechanisms may relate to the four characteristics of deliberative networks, the long-term effectiveness of pyramidal democracy may relate to the 'democratic structuration' that pyramidal networks engenders. We begin by examining the basis for understanding citizens as democratic agents.

Coleman (2017: 52-4) argues that, if we are to imagine citizens as something other than mere 'masses', then we must make three claims about them. First, that they are capable of thinking about the world as reflective individuals and social beings. Second, and following from the first claim, that they are capable of having joint purpose and arriving at collective decisions. Third, and following from the first and second claim, that citizens can influence decisions and outcomes as members of a polity. In other words, then, we must claim that citizens are capable of democratic agency – articulating needs and then taking action to meet those needs.

Coleman outlines four capabilities that are required for citizens to become democratic agents: 1) political intelligibility; 2) deliberative systems; 3) individual significance; and 4) individual effectiveness. The extent to which our bespoke application can facilitate these capabilities thus mirrors the extent to which pyramidal deliberative networks might strengthen democracy. In what follows, we outline each capability in turn and show how it is enabled by deliberative networks.

The first capability, political intelligibility, means that citizens are able to make sense of the political world around them. Given the complexity of international trade or transnational crises such as climate change, it is difficult for non-experts to understand the relevant political choices involved, especially when relatively simple political choices are obfuscated by 24-hour news cycles and a plethora of contradictory ideas and information. Hence, we need to design digital resources that effectively "slow down the democratic process", allowing the majority of people, who are non-experts, to engage reflectively with political information (Coleman 2017: 99). Doing so could render democracy "inclusively accessible and intelligently navigable".

Deliberative networks would help to "slow down" the political world: 1) by allowing all, or most, alternatives and options to be articulated; 2) by attuning the investigation and weighting of options to a timeframe based on group-formation, solution-identification, and delegate-selection – not a timeframe premised on a 24-hour news cycle; and 3) by enabling any citizen to easily find and engage with any issue of interest to them, at any time, for as long a time as they wished, at the participative intensity that they wished. In this way, then, deliberative networks might make the political world more intelligible to citizens.

The second capability, deliberative systems, means that citizens need to have a means of being open to argumentative exchange. If we wished to make deliberation a systemic feature of our politics, Coleman argues (2017: 101), then we would need to undertake a "radical re-design of the existing political communication system". If such a redesign occurred, Coleman continues, then governments, corporations and NGOs would have to become better attuned to listening to their citizen stakeholders.

Pyramidal deliberative networks, we assert, are the required radical re-design of the political communication system and, furthermore, democratic mechanisms are the means of attuning governments and corporations to their citizen stakeholders. As Coleman notes, moreover, it is important that any redesign of the system is not stand-alone: online and face-to-face deliberation should occur simultaneously within a deliberative system and with "specific spaces and media contributing according to their specific affordances" (103). We have already noted the importance and desirability of face-to-face deliberation, especially at the higher tiers of the pyramidal network. Thus, all in all, pyramidal networks meet the requirements for a deliberative system capable of facilitating argumentative exchange.

The third capability, individual significance, means that citizens need to feel that they are recognised as someone who counts. As Coleman (107-9) notes, there is a mismatch between the "voluble self-expression" that characterises how people communicate online, and the "attenuated character of -partisan [political] representation". Thus, although the internet provides citizens with new and innovative ways to communicate, governments are generally incapable or uninterested in listening. Voter apathy and distrust in government therefore grows. Resolving this problem means reconceptualising political representation as an "ongoing conversation about local experiences, competing values and public choices" (ibid). If this conversation were supported by "well-designed digital communication structures", then citizens might feel that their individual voices not only counted but were crucial for social progress.

Pyramidal networks might help to make each citizen voice significant for the following reasons: 1) because deliberative networks become more legitimate when they comprise more citizens, the voice of each individual citizen contributes incrementally to the significance of the network; 2) because each citizen can ensure their voice is heard by communicating directly with both their peers and any delegate in the pyramid; and 3) because the input of each citizen at each stage of the deliberative process has a direct effect on the final outcome. Thus, by design, each citizen is significant to the operation and effectiveness of pyramidal deliberative networks.

The fourth capability, individual effectiveness, means that citizens must be able to make a difference. For Coleman, citizens can do this by remaining voluble and ensuring that issues and problems of importance are not framed and defined by others who may have unscrupulous or undemocratic intentions. In other words, citizens can be effective by maintaining a "pluralistic presence" (111) which ultimately depends on how the demos is "persuaded to see itself" (115). If citizens begin to believe that their voices are both significant and important – and the impact of deliberative networks strengthens this belief over time – then the effectiveness of every participating citizen becomes more

assured. It is this cycle – of action begetting success, and success begetting action – that would make deliberative networks effective. Thus, if citizens could be persuaded to see themselves as significant and effective, then deliberative networks might operate to make them so.

We might then see how deliberative networks enable the democratic agency of citizens, by: 1) making politics intelligible, 2) providing deliberative systems; 3) rendering participation significant; and 4) rendering participation effective. If we accept that deliberative networks facilitate democratic agency in these ways, then we might see how this state of affairs derives directly from the structure of pyramidal networks themselves. Our key claim, then, is that deliberative networks organise – structurate – citizens in particular ways, and thus channel their participation in such a way that they become capable of projecting social power. In order to substantiate this claim, we can briefly examine the idea of structuration.

Structuration theory (Giddens 1979, 1984) emphasises the duality of structure and agency. Under this line of reasoning, there is an essential "recursiveness of social life" whereby structure is both "medium and outcome of [the] reproduction of practices" (Giddens 1979: 5). The core idea is that structures are not "reified entities denuded of human beings and their irreducible qualities", just as agents are not "islands unto themselves" whose thoughts and actions are entirely separate from the structures in which they are embedded (Stones 2005: 4). At the core of structuration theory is the claim that structure and agency are co-determinative: they iteratively determine each other over time.

Drawing on Benjamin Barber's (1984) arguments for strong democracy, Richard Sclove (1995) – citing structuration theory – suggests various design principles (democratic politics, democratic work, democratic community) for what he calls "democratic structuration". He notes that strong democratic procedure "expresses and develops individual moral freedom" while the resultant structures – derived from such procedures – constitute "conditions requisite to perpetuating maximum equal freedom" (35). The core idea here is that, if we want citizens to express agency in society by means of strong democratic procedures, then we need structures that enable those procedures. Moreover, the agents and structures that comprise strong democratic procedures are co-determinative. Thus, democratic structuration is the conscious structuration of society such that strong democratic procedures are continuously generated, reproduced, and transformed.

We suggest that pyramidal deliberative networks instantiate the idea of democratic structuration. The pyramidal network is, itself, a coherent and clearly defined structure – with specific rules, functions and possibilities – that enables agency is specific ways. If our claim is plausible that pyramidal democracy enables democratic agency in citizens, then it is plausible that this is possible because

pyramidal networks are structures with characteristics that make democratic agency possible. Hence, we can say that pyramidal democracy is a specific instantiation of the idea of democratic structuration.

Why is this important? Our objective here is certainly not to develop a theory of democratic structuration or even dwell too long on the idea of structuration itself. Rather, our objective is to make a simple but important claim: pyramidal democracy structurates – organises – citizens in a particular and unique way which has not yet existed or has not yet become a common means of organising. Democratic structuration, moreover, derives over time from the acculturation of citizens to expressing 'voice' by means of pyramidal networks, and this process of acculturation itself is driven by the four characteristics of pyramidal networks that better ensures their effectiveness.

6.2.4 Evidence-Based Policy-Making

Evidence-based policy-making (EBP) is the idea that public policy should be based on the best available evidence. A potential concern when it comes to pyramidal democracy is the potential for citizens and their delegates to choose, or otherwise make social demands for, the 'wrong' policy. In order to respond to this possibility, we need to first make a few observations about EBP.

First, it is necessary to dispense with the idea that evidence can always help to determine an objectively 'best' policy. As Head (2008: 9) argues, policy decisions are not deduced primarily from facts and empirical models but from "politics, judgement and debate". In this sense, we should bear in mind that what constitutes 'evidence' is almost always dependent on context and background relations of power (Marston and Watt 2003; Young 2010).

Second, and following from the first point, the more complex the problem the less effective a purely technical approach becomes, and the more effective a relational approach – that includes one or more networks of relevant stakeholders – becomes. Recall that this is essentially the same observation that we made, in Chapter 1, about the requirement for collaborative networks in the solution of wicked problems. In this sense, Head (2008) argues that there are essentially three different kinds of knowledge that are important for policy-making: political know-how, scientific and technical analysis, and practical and professional field experience. Each of these provide different 'lenses' for understanding the evidence base for policy-making. Political knowledge, for example, is less about facts and more about strategy, tactics, priorities, ideology, accountability, persuasion and advocacy. Scientific expertise and technical analysis, while ostensibly the 'gold standard' when based on scientific method, is itself filtered by choice of methodology[97]. Practical knowledge, finally, results

[97] Recall also, in Chapter 1, the argument that complex social problems require a "post-normal" science that goes beyond the true-false dichotomy of "normal" science.

from the 'practical wisdom' of professionals who form part of a 'community of practice' related to the policy-field in question. Taking these three 'lenses' into consideration, then, suggests that the idea of evidence-based policy-making is far more complex and far less straight forward then one might have assumed.

Bearing this brief overview of EBP in mind, we can now respond to the possibility of citizens choosing the 'wrong' policies. First, we must note that pyramidal networks may be particularly well-suited to integrating the three different types of knowledge. Delegates at all tiers of pyramidal networks – and traditional politicians organised by means of such networks – would represent distilled political know-how. Experts, scientists, and academics organised by means of pyramidal networks would represent technical and scientific expertise. Finally – as we noted in the previous chapter – pyramidal democracy may help to organise practitioners in such a way as to 'map' different communities of practice and, in doing so, transform them into communities of purpose. What we are suggesting, then, is that pyramidal networks may be well suited to enabling relational approaches to policy-making, where different kinds of evidence can be effectively evaluated.

Second, if our assumptions are correct about the epistemic function of deliberation and the 'wisdom of the crowds' effect, then policy-making by means of pyramidal democracy may become more effective with more participants. In short, the greater the variety of evidence and the more that this evidence is distilled by the deliberative process, the more likely we are to arrive at 'good' policies.

Third, it seems inevitable that 'bad' or 'wrong' policies will be selected by means of pyramidal democracy at least some of the time. This is especially likely in the event of tyrannies of the majority or when networks become dominated by populist or extremist leaders. Nothing suggests, however, that the adoption of such policy is irreversible. This is, moreover, one of the key functions of pyramidal democracy: to enable processes of social reconstruction and democratic experimentation. Experimentation implies trial and error and thus the adoption of 'bad' policy. What is crucial is that citizens and top-tier delegates remain open this process of democratic experimentation and are willing to replace 'bad' with 'good' policy whenever the evidence suggests this is appropriate. The more distributed pyramidal democracy become – i.e. the more localised the process of democratic experimentation – the more flexible the adoption of policy may be. Flexibility may incentivise the kind of bold experimentation that may be necessary for resolving the interrelated crises of the 21st century.

Thus, there is a clear relation between evidence-based policy-making and pyramidal democracy, found primarily in the idea of democratic experimentation. The idea here is that 'bad' policy is replaced with 'good' policy as a result of social learning between pyramidal democracies and as a result of

deliberation between groups of citizens who bring different kinds of evidence to the table. Although the adoption of 'bad' policy seems inevitable, nothing suggests that it is irreversible.

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In this section, we have outlined the underlying mechanisms that would make pyramidal networks effective. In the short-term this effectiveness results from the four characteristics of pyramidal networks – reflexive legitimacy, obtrusiveness, uniformity, and modularity. The more that such networks were effective in practice, the cheaper and easier it would become for citizens to express 'voice'. Over time, then, the broad-base adoption of pyramidal networks might acculturate citizens to developing their own democratic agency and projecting this agency in the form of social demands. A process of democratic structuration would result that cemented, over time, the capacity of citizens to project power by means of pyramidal networks. Such networks may help to facilitate an evidence-based approach to policy-making by, on one hand, better enabling citizens to bring different kinds of evidence to the table and, on the other hand, enabling democratic experimentation and social learning between different communities.

6.3 The Problem of Participation

Having some idea now of why we would expect pyramidal networks to be effective, if they garnered some requisite threshold of participation, we can now deal with the problem of participation itself. Why would citizens bother to participate in the first place? And, moreover, is it feasible that citizens would have the time, energy, and interest to participate in pyramidal networks to the extent necessary to make them truly effective? How do we solve, in short, the problem of participation?

We proceed, first, by making a distinction between activism and 'slacktivism' – high-level participation and low-level participation. We suggest that the majority of citizens at the base of pyramidal networks would engage at a low-level but, regardless, this participation is likely to engender positive effects. Second, we note that pyramidal networks distribute the intensity of participation both vertically – within the same network – and horizontally – across all networks in society. This means that the average citizen does not need to participate actively in all, or even most, networks in order for pyramidal democracy to work in practice. Third, we note that active participation may grow the more that the legitimacy of pyramidal networks becomes entrenched, leading to self-reinforcing feedback loops. Fourth, we suggest that active participation is far more likely if society educates citizens – especially young citizens – explicitly for participation. Pyramidal networks deployed across universities

and schools might be the perfect means of instantiating such a process of educating for participation. Finally, we draw on two case studies that suggest a precedent for the kinds of citizen participation that might drive the more broad-based adoption of pyramidal networks.

Thus, although the problem of how to incentivise participation remains crucial, there are various factors that suggest how the problem might be addressed. Core to doing so is the observation that effective pyramidal democracy does not necessarily require all citizens to participate intensively at all times.

6.3.1 Activism vs Slacktivism

As Horstink (2017) notes, online mass politics still lacks much of the empirical research needed to support the claims, and counterclaims, made for its effectiveness or ineffectiveness. Morozov (2009), for example, bemoans the rise of "slacktivism"[98]: political activities – like signing e-petitions – that are easily performed and arguably more effective at making participants feel good about themselves than achieving measurable impact. Online political activities have also been described as the "junkfood of democracy" (Zacharzewski, cited in Ball 2013), lacking the value and wholesomeness of more genuine real-world activism.

The claim that low-level participation is ineffective or counter-productive, however, is not generally supported in the literature (Karpf 2010; Christensen 2011; Skoric 2012). What we do find is that even token gestures – like signing an e-petition or 'liking' a social cause on Facebook – engender positive effects, especially in the sense that the small signs of support increase the likelihood of more significant actions later on (Kristofferson, White and Peloza 2013; Lee and Hsieh 2013). Slacktivism can thus "increase [the] likelihood of participation in subsequent collective action" (Lee and Hsieh 2013: 818). In this sense, then, we should not dismiss low-level online participation, but seek rather to develop "innovative, interdisciplinary methods" for evaluating and increasing its role in political life (Skoric 2012: 88). Online political activity, even of the slacktivist kind, is thus harmless at worst and invigorates citizens at best (Christensen 2011). We draw on this slacktivist/activist distinction as we proceed.

6.3.2 The Vertical and Horizontal Distribution of Participation

Our key claim here is that pyramidal networks, perhaps in a unique way, distribute participation both vertically and horizontally and that this characteristic may play a key role in ameliorating the problem of participation. By vertical we mean that, within any given single pyramidal network, a natural division of labour appears between citizens who are prone to low-level participation and citizens who are

[98] A portmanteau of 'slacker' and 'activism'

prone to high-level participation; between the slacktivists and the activists. By horizontal we mean that citizens are likely to self-select and more actively participate in those networks that deal with issues of substantial interest to them. This implies that, while any given citizen may be a slacktivist in the majority of networks of which they are a member, they would be prone to higher levels of participation in the remaining networks of which they were a member. Thus, both vertically and horizontally, pyramidal networks select for a distribution of intensity of participation that helps to ameliorate the problem of participation.

In this sense, the instantiation of effective pyramidal democracy does not require that all citizens participate intensively at all times. Most networks will be comprised primarily of slacktivists and, as we have noted before, we would expect some groups to stagnate over time and the pyramid as a whole to grow and shrink according to the issue-attention cycle. What we would expect, however, is that the pyramidal structure automatically selects, at each tier, for citizens who are increasingly passionate about the issue or problem in question. In this sense, the effectiveness of pyramidal democracy does not depend on an unrealistic level of citizen participation.

In fact, the necessary intensity of participation is built into the pyramidal structure itself. Assuming a group size of ten citizens, any given network requires 1 in every 10 citizens to be actively participative; i.e. 10% of the total population of the pyramid must be sufficiently passionate so as to take on the role of delegate. Moreover, only 1 in every 100 citizens needs to take on the role of meta-delegate, 1 in 1000 the role of super-delegate, etc, etc. In the same way, citizens need to be truly passionate about only 1 in every 10 of the networks in which they are involved, in order for the requisite threshold of active participation to be met. The intensity of participation is thus naturally selected for both vertically and horizontally[99].

While non-delegate citizens are still required to put time and effort into the deliberative process – especially when the network is initially formed – it is not necessarily required that this level of deliberative participation be maintained indefinitely. Depending on the context and orientation of the network, it may only be necessary for citizens at the base of the pyramid to indicate their continued support for the work of delegates, perhaps participating more intensively only when special circumstances demand it.

[99] In addition, as we have noted in the previous chapter, because participation is more intense at higher tiers of the pyramid, delegates should be appropriately recompensed. In the largest pyramidal networks, compensation thus also helps to solve the problem of participation.

6.3.3 Participation and Feedback Loops

We started this chapter by outlining the characteristics of pyramidal networks and thus why we would expect participation, above a certain threshold, to be effective in enabling citizens to project power. If these assumptions are correct, then the capacity to project power may help to resolve the problem of participation by, over time, engendering more and more citizens to participate the more that pyramidal networks were proven to be effective. In this sense, pyramidal networks may be prone to positive feedback loops that help to grow participation over time.

Once this process becomes suitably established, then it may become self-reinforcing: low-level participation (slacktivism) gives rise to higher-level participation (activism), which, in turn, generates activity – open communication, social demands, etc – that might induce more and more citizens to participate in pyramidal networks. Given some threshold of participation, then, we might see how participation might grow incrementally and/or grow and shrink according to the issue-attention cycle.

In chapter eight, we deal explicitly with this possibility when we apply a systems-thinking approach to pyramidal democracy, arguing that pyramidal networks may activate the leverage point of 'information flows' in any socio-economic institution in which they are deployed. Without going into detail here, the key idea is that pyramidal networks – by channelling the 'voice' of citizens – may help to incrementally change the paradigms that drive society and its various institutions. A key aspect of such paradigm-shifts would be the recognition that citizen participation is both necessary and effective. Such a recognition would help to drive more active participation over time.

6.3.4 Educating for Participation

When one considers the idea of pyramidal democracy in isolation, then the problem of participation appears especially difficult to overcome. This is especially the case if we think about our bespoke application as simply one of hundreds of thousands of applications that are already 'out there', all of which are designed on the premise of attracting enough active users to become viable; i.e. reach critical mass. Under these circumstances, it may seem improbable that our bespoke application would attract enough citizen participation to become effective.

We should not, however, think of pyramidal democracy in this way. For pyramidal democracy to become truly entrenched within society requires a process of educating and designing for participation. As we see below, there are already precedents in civil society and government that may kickstart this process. The most effective way of educating for participation, however, may be to deploy pyramidal networks across schools and universities, especially as a means of educating for citizenship, social justice, and democratic cosmopolitanism, objectives for which the university is well-

placed to pursue (Benson and Harkavy 2000; Harkavy 2006; Richards-Schuster, Ruffolo, and Nicoll 2015). In this sense, pyramidal networks may help to connect institutions horizontally – in different geographical locations – and vertically – connecting schools with universities in so-called community partnerships (Harkavy 2006). Departments and academics concerned with sociology, education, and politics, for example, might then drive the adoption of pyramidal networks and, subsequently, the requisite threshold of participation to kickstart pyramidal democracies more broadly.

Taken to its logical conclusion, the adoption of pyramidal networks across schools and universities would help to educate citizens-in-training to the skill of deliberation and to the potential benefits of participation. If young people became acculturated – through school and university – to developing their democratic agency by means of pyramidal networks, then it follows that they would be more likely to participate in pyramidal networks in later life. In this sense, then, the problem of participation might be overcome by gradually educating for participation.

6.3.5 Case Studies: Precedents for Participation

In this section we suggest two real-world applications of pyramidal deliberative networks. The first relates to e-democracy, and the second to e-participation. These examples demonstrate the potential for pyramidal networks to harness a pre-existing propensity for participation, potentially solving problems that have so far prevented en masse citizen participation. Thus, if pyramidal networks prove to be effective in the ways that we outlined at the beginning of this chapter, then the problem of participation might be gradually solved by tapping into these pre-existing tendencies and initiatives.

E-government initiatives (broadly including e-voting, e-participation, and e-democracy) seek to utilise newly-available ICT technologies for two primary objectives. First, to modernise the public sector by allowing citizens to find information, submit applications, pay taxes, or make queries. Second, to engage citizens more broadly in a process of collaborative decision-making (Macintosh 2004; Sæbø, Rose and Flak 2008; Chun et al 2010). While different governments have generally made progress towards the first objective, few have progressed towards the second; primarily because doing so requires a paradigmatic shift from an internal governance and decision-making model to a collaborative and shared-governance model. Attempts at this generally fail[100] because governments

[100] Problems related to the 'top-down' nature of e-governance models is reported in the case of Mexico (Sandoval-Almazan and Gil-Garcia 2012), Portugal (Fedotova, Teixeira and Alvelos 2012) and the United States (Norris and Reddick 2012). Thus, although Web 2.0 technologies have engendered attempts by governments to increase transparency and collaboration, the capacity of these tools to facilitate "corporate dialog" between local government and citizens, remains in its infancy (Bonsón et al 2012; Royo et al 2013).

ultimately end up "managing" citizens, rather than instantiating a process that develops the autonomy of citizens (Coleman 2007).

Simultaneously, loosely connected groups of citizens make various attempts to use ICT technologies in order to engage in protest or to generally make their voices heard. These groups, or "smart mobs" (Rheingold 2007), are often disconnected from institutional politics, are elusive and transitory, and tend to engage in guerrilla activism, like culture jamming and hacktivism[101]. While indicative of an active citizenry, then, these groups fail to square the circle between expressions of dissent and the implementation or modification of policy (Coleman and Blumler 2009). In other words, while there is evidence that citizens want to talk *with* governments, there is no indication that governments are willing or capable of participating in dialogical communication. There is thus e-democracy from "above" and e-democracy from "below" (ibid), but no coherent middle ground.

Pyramidal deliberative networks might solve this problem by providing a means of 'middle-out' democracy. If citizens could coalesce by means of pyramidal networks, then they might find it easier to articulate their interests, to formulate their demands, to elect leaders, and thus to engage in dialogical communication with authorities. Where citizens were in an aversive relationship with government – activists in Occupy movements, for example – this might then facilitate "e-empowerment" (Macintosh 2004). Where citizens were interested in cooperative engagement with government, then this might facilitate "Government 2.0" (Chun et al 2010). We might see, then, how pyramidal deliberative networks might, in the real world, bridge the divide between top-down and bottom-up e-democracy, and, in doing so, help to resolve the problem of participation.

Our second example relates to pre-existing e-participation and online mass politics initiatives, of which Avaaz.org is the best contemporary example. Avaaz is a "global web movement" which aims to bring "people-powered politics to decision-making everywhere" (Avaaz.org). Founded in 2007, the movement now claims membership of some 45 million people[102] in 195 countries. Avaaz works primarily via emails, each of which promotes a specific campaign. The recipient of the email is invited to sign an e-petition which, after attaining a certain threshold of signatures, is then sent to the

[101] Culture jamming is a tactic used by activists to disrupt or subvert mainstream consumer culture, often by reconfiguring – for example – corporate logos to highlight questionable practices. Dery (1993) notes that culture jamming is a way of "introducing noise into the signal" of everyday culture thereby exposing alternatives that were not visible before. Hacktivism draws on the "the creative use of computer technology for the purposes of facilitating online protests, performing civil disobedience in cyberspace and disrupting the flow of information by deliberately intervening in the networks of global capital" (Gunkel 2005: 595).

[102] The organisation works on an "opt-out" basis, meaning that it considers someone who has signed a petition or signed up for an email alert as a member, unless that person specifically opts out. Avaaz does not publish how many of its 45 million members are active, or even if they're aware that they are considered to be members.

organisation, politician, or government official concerned. Avaaz thus represents a "hybrid form of activism" (Chadwick 2007, Horstink 2017) combining traits of spontaneous social movements – like the Occupy movement – with the traits of more traditional advocacy organisations or interest groups – centralised decision-making, the use of experts, and the leveraging of the media.

Horstink (2017), in an analysis of Avaaz, finds that the organisation falls short in terms of equality, inclusion, transparency, and deliberation. In terms of equality, the organisation is run like a company and there is only weak correspondence between the goals of members, as indicated by a yearly poll, and the actual campaign goals that are prioritised. In terms of inclusion, participatory tools are severely limited[103]: members can only donate money, sign one of six active petitions, join email alert lists, or write short stories about Avaaz. In terms of transparency, Avaaz does not disclose the failure rate of petitions and provides no information on governance, decision-making procedures, or the distribution of funding. In terms of deliberation, Avaaz "values acting over talking" and has "no mechanism for discussion or debate with or among its members" (Horstink 2017: 117-120).

Despite these shortcomings, we can still credit the organization, and others like it, with "exposing considerably more individuals [then otherwise would be] to issues of human rights and other important social and ecological challenges" (Horstink 2017: 122). Similarly, the creation of the largest advocacy organisation in the world, crossing almost all geographical and linguistic boundaries, is not an insignificant achievement. We must be wary, however, of what Gerbaudo (2014) calls "techno-plebiscitarianism" – populist mass opinion erasing minority voices – and techno-proceduralism – new forms of direct democracy engendering rote activities that never deliver substantive demands about the improvement of social and economic conditions.

Pyramidal deliberative networks might help to solve Avaaz's problems related to equality, inclusion, transparency, and deliberation. All 45 million members could be organised by means of a single pyramidal network, with top-tier delegates forming a working committee to drive activism based on the priorities that members identified by means of compression. By means of pyramidal networks, then, Avaaz could become a more transparent, deliberative, and effective organisation.

In terms of participation, the existence of Avaaz suggests that en masse transnational participation by means of a bespoke application is feasible; i.e. a propensity for activism among global citizens already exists. Avaaz and similar initiatives, moreover, suggest how pyramidal networks could very quickly reach the threshold of participation necessary for kicking off positive feedback loops that attract more

[103] Ricken Patel, Avaaz's executive director, explicitly states in interviews that a centralised model of decision-making is a conscious choice (Beutz Land 2009); this centralisation giving senior staff a broad mandate to interpret the direction of the movement.

and more citizen participation. A 45 million-strong transnational pyramidal network – after one or more decisive 'victories' in the national or international arena – would cement the effectiveness of pyramidal democracy and perhaps engender more broad-based adoption throughout society. Thus, pre-existing mass politics initiatives, like Avaaz, may help to resolve the problem of participation.

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In this section we have outlined the problem of participation and suggested how it might be overcome in several ways. Key to resolving the problem is the distinction between low-level and high-level participation (slacktivism/activism) and the way in which pyramidal networks distribute the intensity of participation both vertically and horizontally. Given this distribution, it might be possible for pyramidal networks to become large enough to meaningfully effect change. The more that pyramidal networks were proven to work in practice, the more likely it would be that citizens participated. Moreover, designing and educating for participation – especially by deploying networks across schools and universities – might be an effective way of reaching the requisite threshold of participation for meaningful change. Finally, pre-existing initiatives – like Avaaz – speak to a propensity for participation which pyramidal networks might quickly take advantage of. Thus, although the problem of participation remains a key obstacle, there seem to various ways in which the problem might be resolved.

6.4 The Problem of Tyranny or Co-optation

In this section, we deal with the problem of tyranny and co-optation. Tyrannies of the majority could occur primarily in the event that extremist leaders dominate the pyramidal network, engendering a state of affairs where the rights of minorities are infringed. Tyrannies of the state could occur when states utilize their surveillance and security apparatus to repress the citizens and delegates who comprise pyramidal networks. Co-optation could occur internally when the deliberative process is compromised by inequalities between participants in time and resources, or externally when the state or vested interests seek to explicitly co-opt the deliberative process by force, bribery or subterfuge.

When considering the problem of tyranny, it is worth remembering that we are not suggesting that the current political system, along with its checks and balances, be replaced overnight with a pyramidal system. The evolution from pyramidal networks to formal pyramidal democracy, as we described in the previous chapter, is likely to be gradual and incremental. This fact then works against the possibility of tyrannies of the majority in the short-term. Similarly, pre-existing constitutional protections would likely prevent such tyrannies in the medium-term. Be this as it may, the possibility

of democratic tyrannies remains a key problem and we outline various ways in which the problem might be ameliorated.

When it comes to co-optation there are, similarly, factors that work against the possibility of vested interests hijacking the deliberative process. Key among these is the sheer potential scale of pyramidal networks. If a pyramidal network is large enough to threaten a vested interest, in this sense, then it is likely too large to safely co-opt. The possibility of substantial public relations fallout, should the attempt at co-optation be discovered, therefore works against the possibility of such co-optation.

6.4.1 Tyranny of the Majority

There are essentially two types of majority tyranny: political and socio-cultural. The former speaks to the problem of a "political, numerical majority" which is capable of using its majority to influence government policy, and limit or infringe on the rights of minorities. The latter speaks to the problem of uniformity in social and cultural outlook, or in public opinion, that acts to supress minorities; i.e. a "tyranny of unanimity" (Horwitz 1966: 305). While Madison was primarily worried about the political kind, De Tocqueville was primarily worried about the socio-cultural kind (ibid). Our main point in this section is to twofold: 1) pyramidal democracy may help to ameliorate the effects of socio-cultural tyranny, but 2) pyramidal democracy may also enable full-blown political tyrannies.

We begin by suggesting that, for the most part, contemporary society might be characterised as a "majority regime". According to Martin (1961: 14), the majority is made up of "middle-class people who are culturally active" while the mass is composed of those who have "not even come to the point of being culturally receptive". A majority without the will to act is, then, really a mass (17). For Martin, the ruling classes have successfully aligned the consciousness of the majority – doctors, engineers, clerks, businesspeople, etc – with the interests of the "business society". The resulting "majority regime", like the "mass society manipulated by it", should not be thought of as a clash of classes; it is rather a question of "hierarchies versus masses" (73)[104].

All the varieties of workers in the business society – the scientific worker, the cultural worker, the civic worker, the skilled and unskilled worker – all are "vital parts of the business society, a controlled majority regime". To a greater or lesser extent, each of these workers feels the "pull of business interests" and recognises themselves as "subjects of the new monarchy of money or oligarchy of commerce" (103). The majority regime is thus similar to Marcuse's (1964) "one-dimensional society", especially in the sense of the perpetuation of false needs, by which citizens are structured into hierarchies and integrated into the system of production and consumption. If we accept this reading,

[104] We might immediately see, in Martin, premonitions of Hardt and Negri's (2005) conception of "multitudes".

then we might see how the dominant economic ideology is similar to a “tyranny of unanimity”; a socio-cultural consensus, perpetuated by the majority regime, that harnesses the mass at the bottom of the socio-economic hierarchy to the minority at the top.

If our assumptions are correct that pyramidal democracy can undermine the perpetuation of false consciousness (see Appendix IV), and if we are similarly correct that pyramidal democracy can help to develop consensus over positive ideologies – a democratised global economy, in particular – then we might see how the majority regime might be transformed into a majority society. As Martin (148) muses, the solution to the majority regime probably lies in “some machinery that will establish permanent connections between institutions and masses” and thus create “a civic opportunity for the growth of a self-educating democracy, a people’s culture”. Pyramidal democracy may represent such machinery.

That same machinery, however, might also instantiate majority tyrannies of the political type. If pyramidal democracy successfully reconciles direct democracy with mass engagement, then it may simultaneously enable majorities to systematically limit or infringe on the rights of minorities. Wherever citizens were organised into state-level pyramidal networks with formal power, then it would be feasible for the will of the majority to automatically become the policy and law of the state. Where delegates dissented, it would be possible for citizens to simply remove them. The result might be the crystallization of political structures inherently hostile to minorities and minority rights. In an empirical study, for example, Lewis (2013) finds compelling evidence that the rights of minorities are more at risk under governments with institutions for direct democracy, as compared with representative governments without such institutions.

We would suggest that the possibility of political majority tyrannies is the single biggest threat that pyramidal democracies may pose. While it is difficult to anticipate whether such tyrannies would indeed form, or be stable in the medium-term, the danger is twofold. First, there seems to be no precedent for reconciling mass engagement with direct democracy, and thus no precedent on which to evaluate the potential threat to individual rights and freedoms. Second, if pyramidal networks became broadly adopted and accepted in society, there would be almost no possibility of removing them; i.e. once successfully established, the pyramidal model may be irreversible. These two dangers thus suggest the potential threat that establishing pyramidal democracies might pose.

One must bear in mind, however, that pyramidal democracy is not a monolithic idea; there is not just one pyramidal network from which legitimacy is derived. In this sense, although extremist leaders and tyrannies of the majority may arise by means of pyramidal networks, this does not necessarily imply an absence of political opposition. If it were possible for extremist leaders to rise to power by means

of pyramidal networks, then it would be possible for a meaningful political opposition to develop by means of the same networks.

In essence, the mechanism that prevents extremist leaders dominating the pyramidal network – by means of a tyranny of the majority – is the same mechanism that prevents such an occurrence in contemporary liberal democracies: constitutional checks and balances and separation of powers. At no time have we suggested that formal pyramidal democracy should be implemented without these checks and balances. Although pyramidal democracy may make it easier for these protections to be removed, it would also make it easier for these protections to be replaced or even strengthened. Nothing immediately suggests that, if pyramidal democracy were implemented, citizens would support stripping away these protections.

We can respond, however, to the possibility of a tyranny of the majority in at least three ways. First, the consent that governments enjoy is often related as much to what they do as to what they *do not* do (Partridge 1971: 63). Thus, even though a citizen might not care overly much about a specific minority, if they saw the rights of that minority attacked, then this might bring questions of active consent immediately to the fore; i.e. an attack on minority rights might bring to light a "latent consensus" that minorities *should not* be attacked, even though that consensus was only tacit prior to the attack. This might especially be the case if citizens recognised that, if they actively consented to the stripping of minority rights, then their own minority interests might be next. In this sense, then, any attack on minority rights might prove unfeasible in the medium-term.

Second, while citizens might initially hold a majority-preference hostile to the rights of a given minority, this preference might change under processes of deliberation and debate. Thus, in order for the tyranny to be stable, delegates would need to collectively 'fail' in their job of filtering preferences, reaching compromises, and detecting policy inconsistencies. In this sense, in order for a political tyranny of the majority to arise under pyramidal democracy, the 'injustice', if it were conceived in these terms, could not be 'swept under the rug'. Citizens would need to actively consent to infringing on the rights of minorities; they would not be able to claim ignorance or avoid responsibility by electing politicians who would infringe those rights on their behalf. This might work against the possibility of stable tyrannies.

Third, while active citizen consent for a majority tyranny may be achievable in a vacuum, it might be increasingly difficult in a globalised world comprising state-level networks. In this sense, any attempt by a majority to infringe the rights of a minority might immediately draw the attention and ire of citizens comprising state-level networks in other locations. Citizens in one location would thus become responsible, to some degree, to citizens in other locations. If this kind of scrutiny and pressure failed,

then citizens might directly sanction the infringing-citizens by means of boycott, divestment or sanction. In this sense, then, peer-to-peer scrutiny may help to develop a form of cosmopolitan democracy; a level of uniformity between laws and individual rights across different countries. We investigate this possibility in the following chapter.

In conclusion, there are various factors that work against the possibility of a political tyranny of the majority, especially one that could be sustained in the long-term. In a world where pyramidal networks were effective enough to engender such tyrannies, then pyramidal networks would likely be effective enough to reverse such tyrannies. This does not mean that the problem is insignificant; it remains, as we have noted, the single biggest danger.

6.4.2 Tyranny of the State

Effective pyramidal democracy requires that citizens voice dissent and that citizens are willing to come forward as delegates and represent these dissenting voices. Because pyramidal networks are ICT-facilitated, however, a danger exists that states use such networks to surveil their own citizens. The iterative selection of delegates, in this sense, may actually help authoritarian states to identify and supress dissenting voices. There are several ways in which we can respond to this problem[105].

First, as we noted briefly in Chapter 2 and expand on in Appendix III, the advent of blockchain technologies may make it increasingly unfeasible for states to track the online activities of citizens or selectively disable access to parts of the internet. In short, the fact that blockchains are a distributed technology means that there is no centralised location (like a single web address) that can be blocked. Similarly, extensive encryption means that states would be unable to track the activities or identify those individual citizens who organised by means of pyramidal networks. In this sense, new technologies like blockchains and end-to-end encryption work against the possibility of broad-based state surveillance.

Second, although it may be unfeasible to track and identify *all* the citizens who formed the base of a pyramidal network, it may still be feasible for states to do so for citizens at higher tiers. This might be done by intensively parsing deliberative transcripts for hints about the location or identity of the delegate and/or deploying agents to fish for such hints by means of the deliberative forum. Moreover, as we see in the next section, in order to avoid internal and external co-optation of the pyramidal network, it is likely to be necessary that delegates at higher tiers reveal their real-world identities.

[105] The uneven levels of democracy across the world – and thus the presence of authoritarian states – may be problematic when it comes to the adoption of pyramidal democracy. We return to this problem in the final chapter. For the time being, we are working from the assumption that nothing inherently prevents the adoption of pyramidal democracies within and across all full democracies and flawed democracies, which account for roughly half the global population (Economist Intelligence Unit 2018).

There is thus a potential trade-off between privacy and authenticity. If top-tier delegates remain completely anonymous, then we can never be sure that they, themselves, are not agents of the state. If we require that top-tier delegates reveal their identities, however, then we might make them targets for state surveillance and suppression. A danger clearly exists, therefore, in relation to state surveillance.

Third, while the possibility of pyramidal networks enabling surveillance and repression is a major unresolved problem, it may be possible for pyramidal democracy to resolve the problem by eventually dismantling the surveillance state. Given some threshold of citizen participation and given the entrenched legitimacy of pyramidal democracy – both within the country in question and across the world more broadly – it may become increasingly politically unfeasible for states to surveil or repress citizen delegates. This eventual potential outcome, however, does not change the fact that citizens may be required to sacrifice their own lives and freedoms along the way. History is replete with examples of citizens who have stood up to authoritarian regimes at the cost of their own lives.

The difference, when it comes to pyramidal networks, is that the repression of delegates may prove far riskier because delegates are an extension, ostensibly, of the democratic agency and human rights of all citizens at the base of the pyramidal network. Repression must therefore be total, rather than piecemeal[106], and would thus pit the regime directly and overtly against its own citizens. It remains unclear how sustainable such overt repression would be over time, especially in a world where citizens in less authoritarian states were free to petition their own governments, by means of pyramidal networks, to sanction the authoritarian regime.

All in all, then, a significant risk exists that states use pyramidal networks as a tool to aid surveillance and repression. Although technology provides certain safeguards against such an outcome, those safeguards are by no means infallible. By the same token, however, in a world where pyramidal networks were effective and broadly entrenched, it seems unfeasible that authoritarian regimes would be able to repress their citizens indefinitely. Thus, while it would be naïve to suggest that pyramidal networks would solve the problem of state surveillance and repression in the short-term, it would be disingenuous to suggest that they could co-exist with such repression in the long-term.

[106] In other words, locking up or 'disappearing' a pyramidal delegate may be difficult for an authoritarian regime because the delegate has the explicit support of citizens at all lower tiers. In supressing delegates, then, the regime is essentially supressing all citizens in support of that delegate. It is unlikely that the regime could do so unless it makes pyramidal networks entirely illegal. Hence, suppression must be total rather than piecemeal.

6.4.3 Co-optation

We can distinguish between two types of potential co-optation: internal and external. Internal co-optation might come about when individual citizens seek to hijack the deliberative process for their own ends. External co-optation might occur when vested interests – like corporations or the state – actively deploy agents, in the guise of citizens, in order to hijack the deliberative process. We deal with each type in turn.

Internal: The potential for inequality in time, resources, and rhetorical ability is a perennial problem in deliberative theory (Cohen 2009). In Appendix IV, where we review deliberative theory in light of pyramidal democracy, we deal more fully with this and similar issues. What we suggest there is that – as compared with face-to-face deliberation and on a case-by-case basis – pyramidal democracy has significant potential to resolve these problems.

We have already suggested, furthermore, that most pyramidal networks are likely to comprise a majority of slacktivists and a minority of activists. If we accept that the majority of activists are likely to be those with more free time or more rhetorical ability, then it follows that pyramidal networks may be intrinsically vulnerable to explicit or implicit co-optation. This is a major potential problem when it comes to evaluating the equality of participation in pyramidal networks.

Without testing pyramidal networks in the real-world, however, it is difficult to ascertain the extent of the problem or how it might be naturally resolved as pyramidal networks became more entrenched and as citizens became more acculturated to developing their democratic agency. What we can suggest, is that pyramidal democracies may have ample means of correcting this problem when it occurs, by: 1) creating voting blocs that amplify underrepresented voices and positions; 2) gradually acculturating citizens to voicing their opinions and becoming delegates; and 3) adapting rulesets and constitutions such that co-optation is easier to identify and correct. In this sense, then, internal co-optation – while remaining a trenchant theoretical problem – should be understood as a problem that must be resolved by means of iterative experimentation and redesign.

Finally, we should note that it seems unlikely that pyramidal networks can be both large enough to be effective and prone to long-term internal co-optation. While any given group may experience internal co-optation at some time or another, it seems unlikely that the pyramidal network as a whole – by measure of the activities of top-tier delegates – could operate in a manner that was not supported by a majority of citizens at the base of the network. Because the actions of top-tier delegates are, at all times, tethered to the support of citizens at the base, those citizens would have the power to reconstruct the network (recall all delegates) if they thought that broad-based co-optation had occurred.

External: If pyramidal networks were to become broadly entrenched within society, then one might argue that vested interests – like corporations, states, think tanks, etc – would actively seek to co-opt the deliberative process by paying operatives to pose as citizens and work their way into top-tier positions. The role of citizen researcher – those who compile ostensibly neutral dossiers on controversial problems – may be particularly vulnerable to capture by moneyed interests. We can respond to this potential problem in several ways.

First, in terms of the co-optation of the deliberative process, we should first acknowledge that this problem is already prevalent in many existing political systems. Political lobbying is a multi-billion-dollar industry in the USA[107] and, perhaps not surprisingly, lobbyists get paid for who they know rather than for what they know (Bertrand et al 2011), firms that actively lobby are far less likely to be investigated for fraudulent activity (Yu and Yu 2011), and firms who expect to benefit from changes in legislation and regulations are more likely to actively deploy lobbyists (Hill et al 2013). In this sense, co-optation already occurs in the form of special interest lobbying.

The introduction of pyramidal democracies – especially state-level networks funded through tax revenue – would go some way towards evening the playing field in terms of citizen versus corporate power. Recall that, according to Pivato (2009: 7), delegates at high tiers would play essentially the same role as lobbyists and legislative aids: "gathering and analyzing information, preparing and critiquing policy documents, advocating on behalf of various interest groups, and of course, briefing and consulting their constituents". While these roles would be vulnerable to capture by vested interests, the sheer number of available positions works against the possibility of successful capture[108].

Second, although it seems feasible and even likely that corporations would employ graduates and pyramidal democracy experts in order to strategically influence the agendas of pyramidal networks, it seems unlikely that they would be able to do so in a covert or Machiavellian manner with any measure of success for any extended period of time. The possibility of whistle-blowers coming forward – made more likely by the advent of organisations like Wikileaks – would substantially increase the risk of being caught in the act. The cost of systematically attempting to co-opt the process, in this sense, is likely to substantially outweigh the cost of simply cooperating, with or without good faith. The possibility of being found out thus works against the possibility of systematic co-optation.

[107] See http://www.opensecrets .org/lobby/ for an overview of data drawn from the Senate Office of Public Records.

[108] Recall that, based on our calculations on the cost of remunerating full-time delegates (Appendix III), there would be approximately 30 000 delegates earning a full-time salary in a state-level network comprising all the citizens of the United States, as well as 270 000 earning a part-time salary. It seems unlikely that corporations would be able to capture enough of these delegates to meaningfully co-opt the deliberative process.

Third, the risk of external co-optation is a problem that might be resolved though design. Specifically, rulesets and constitutions could be written to as to make it mandatory for top-tier delegates to reveal and authenticate information about their real identities and histories[109]. Such safeguards would make it increasingly difficult for so-called 'sock puppets'[110] to assume delegate roles at the highest tier of the pyramidal network. In order to do so successfully, the saboteur would need to create a credible fake identity and history – which may be a felony crime – as well as a network of fake friends as acquaintances. Again, the potential costs and risks associated with this kind of approach would seem to far outweigh any potential benefits.

Fourth, and finally, the role of researcher – those who are tasked with compiling a neutral dossier of facts related to controversial problems – may seem a particularly vulnerable target for external co-optation. While this may certainly be the case in very small networks, it seems unlikely to be a problem in larger networks. In essence, the external co-optation of researchers is prone to the same costs and risks of co-opting delegates, which works against the possibility of vested interests attempting to co-opt researchers.

Moreover, the wiki protocol provides a tried and tested method of crowd-sourcing information and managing contestations over accuracy and precision. Wikipedia, for example, although not perfect, remains comparable in accuracy to other encyclopaedias (Giles 2005) and tends to accurately reflect recent political events (Brown 2011). This accuracy is achieved by a 'wisdom of the crowds' effect in combination with automated content curation software that helps to weed out vandalism and prevent inaccuracy (Niederer and van Dijck 2010). Thus, the Wiki protocol, suitably adapted to the generation of neutral dossiers and suitably integrated with groups of experts organised by means of pyramidal networks, would represent a means of preventing the capture of researchers by vested interests.

Thus, although external co-optation is a potential major concern – and vested interests are likely to try and co-opt the deliberative process in some way – there are several reasons to doubt that such powers would be able to do so successfully for any length of time. Key among these is a simple correlation: if a pyramidal network became large enough to meaningfully threaten a vested interest, then that network would likely be too large for that vested interest to successfully co-opt. More often than not, the potential costs of co-optation would substantially outweigh the potential costs of cooperation.

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[109] As we have noted, however, this requirement may conflict with measures aimed at preventing state surveillance of delegates. There does not seem to be any clear solution to this conflict.
[110] Fake online identities created for the purpose of deception.

In this section, we have dealt with the problems of tyranny and co-optation. The biggest threat posed by the implementation of pyramidal democracy is the possibility of the rise of extremist leaders and subsequent tyrannies of the majority. The mechanism that works to prevent such tyranny are constitutional checks and balances, the same mechanism that prevents such tyranny in in liberal democracies today. In the event that a tyranny of a majority did form, however, there are several factors that work against the possibility of it remaining stable in the medium-term.

When it comes to the tyranny of the state, we must acknowledge that pyramidal democracy provides new opportunities for authoritarian states to surveil citizens and repress consent. While technology and global public opinion work against this possibility in some ways, it may simply be a problem that is resolved by sustained dissent and the gradual dismantling of the surveillance state.

Finally, while the internal co-optation of parts of the pyramidal network is feasible – especially due to natural inequalities in voice and participative intensity – it is unlikely that a whole network could be co-opted; i.e. that top-tier delegates pursued policies which were not supported by the majority of citizens at the base of the network. Sustained external co-optation by vested interests is also unlikely, primarily because the potential costs of co-optation are likely to outweigh the potential costs of cooperation.

6.5 Conclusion

In this chapter, we have dealt with the two most pressing criticisms that might be levelled against the feasibility and desirability of pyramidal democracy: the problem of participation and the problem of tyranny or co-optation. To lay a foundation for that argument we outlined the mechanisms by which we would expect pyramidal networks to work effectively, primarily the four characteristics of such networks – reflexive legitimacy, obtrusiveness, uniformity, and modularity. Taken together, these characteristics would help to ensure that citizens would be able to exercise 'voice' in any institution organised by means of pyramidal networks. This capability, we suggest, might instantiate a process of democratic structuration whereby citizens became incrementally acculturated to developing their democratic agency and thus projecting power by making social demands for the modification or implementation of policy. Democratic structuration helps to explain why we might expect participation to grow the more that pyramidal networks were proven to be effective.

The problem of participation, moreover, is partially resolved by the fact that pyramidal networks distribute the intensity of participation both vertically and horizontally. This means that, in order for pyramidal democracy to be effective, citizens are not required to participate in all networks at all

times. Given that low-level participation can engender high-level participation, that citizens can be educated for participation, and that various precedents exist for online mass political participation, it seems feasible that the requisite threshold of participation could be met that would cement the reflexive legitimacy of pyramidal democracy. Positive feedback loops, which subsequently helped to expand participation over time, would thus help to resolve the problem of participation.

Finally, although the problem of a tyranny of the majority is the single biggest concern when it comes to pyramidal democracy, this problem might be resolved by the same constitutional checks and balances that prevent such tyrannies in liberal democracies today. When such tyrannies did occur, however, there are various factors that work against them being sustainable in the medium-term. When it comes to the co-optation of pyramidal networks, the sheer scale of pyramidal networks works against the feasibility of vested interests successfully hijacking the deliberative process for any length of time. In this sense, the potential costs of co-optation are likely to outweigh the potential costs of cooperation.

We can also now conclude the primary argument in this dissertation: that ICT might enable the reconciliation of deliberative democracy with mass engagement. If our assumptions are correct regarding the feasibility of our bespoke application to structurate citizens by means of pyramidal networks, and we are correct that compression might meaningfully aggregate deliberation at different tiers of the pyramid, and, furthermore, we are correct that citizens might project social power by means of democratic mechanisms, then we can see how ICT might reconcile democracy with mass engagement. In ancient Athens, it was the day-to-day civic engagement, public service, and exercise of democratic agency – consistently and on the part of many citizens – that made it possible to achieve self-governance by means of the deliberative ideal. Pyramidal networks and democratic mechanisms could make the same system feasible in all modern-day societies and at all conceivable scales.

The more broad-based the adoption of deliberative networks and democratic mechanisms becomes, the more we can envisage the democratisation of the public sphere in terms of a landscape of pyramidal networks comprising the market, government, and civil society spheres. Such a landscape might, in turn, enable the formation of communities of practice and purpose orientated towards the solution of social problems. If this is the case, then the formation of global collaborative networks is feasible; networks that may be required for the resolution of the interrelated crises of the 21st century. In the following chapters we outline the nuts and bolts of how these networks might form and what kinds of social demands they might make. Thus, we outline the potential for a citizen-based schema of global governance and the democratisation of the global economy.

7. Global Democracy

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7.1 Introduction

In the preceding chapters we have laid out an argument for how ICT might reconcile deliberative democracy with mass engagement. Key to that argument are the broad-based adoption of deliberative networks and democratic mechanisms, engendering, in due course, the democratisation of the public sphere. We have thus presented an argument primarily for the *feasibility* of reconciling democracy with mass engagement. In this chapter we continue that argument by suggesting why such reconciliation might be *desirable*. At the core of our argument is the assertion that pyramidal

democracy makes the formation of transnational pyramidal networks feasible. If such networks can be connected together into broad configurations that enable global citizens to project power, then it might become possible for citizens to make global-level social demands for the implementation or modification of policy. A citizen-based schema of global governance might be the result.

The core requirements to be met by any form of global governance or world government focusses predominantly on three aspects: ensuring peace, realising distributive justice (alleviating poverty), and addressing environmental sustainability (Tannsjo 2008; Falk 2014; Kuyper 2016). In the following chapter, we outline our model of a democratised economy that speaks directly to distributive justice, and indirectly to environmental sustainability[111]. In order for our model of a democratised economy to be realised, however, citizens must become empowered to make global-level social demands. A key example is the demand for a redistributive Tobin tax. A democratised economy would mean little, moreover, in a world at war. In this chapter, then, we provide an argument as to how transnational pyramidal networks might enable a model of global democracy that would meet the requirements for both ensuring peace and enabling citizens to make demands for distributive justice and suitable environmental protection.

Our model – what we call a citizen-based schema of global governance – is premised on three components: new forms of global representation, reform of the United Nations, and the possibility of restricting the capacity of states to declare war or deploy military force. We proceed as follows:

First, we outline four new forms of global representation that might arise by means of transnational pyramidal networks: broad-based alliances between social movements, trade unions and community organisations (SMU configurations); transnational political parties with unitary manifestos but who contest local and national elections in more than one country; interparliamentary institutions (IPIs) whereby elected officials from around the world can deliberate over global-level policy, thus forming a link between the local citizen and international decision-making; and a People's Assembly formed by combining pyramidal networks in each member state of the United Nations. These forms of global representation are the bedrock of our model, enabling, in turn, the other two components.

[111] Recall that a sustainable stock of natural capital is not only necessary for a maximal basic income, but, given the non-substitutability of humanmade capital for natural capital, is the basis by which human civilization is possible. In this sense, we cannot stress enough the importance of ecological sustainability for the realisation of social equality. In this chapter, however, we make the assumption that, if it is possible to secure a peaceful world and a democratised economy, then it is possible to restrict the drawdown of natural capital and the pollution of the global commons. Although we do not deal with this assumption explicitly, it is important to bear in mind that a fee-and-dividend carbon tax would be a crucial component in the governance of the commons. In the following chapter, moreover, we show how the components of the democratised economy play a pivotal role in deploying renewable energy systems at a pace and scale sufficient, potentially, for addressing climate change.

Second, we outline how these forms of representation might, in turn, create new possibilities for the reform of the United Nations. A People's Assembly, in particular, might enable the reform or empowerment of the General Assembly and, in turn, the United Nations Security Council. Where reforms were blocked – especially by permanent members to the Security Council – IPIs, SMU configurations and transnational political parties might directly contest the legitimacy of nation-states, *qua* unitary actors, to decide policy on the part of citizens who comprised those states. In conjunction with UN reform – or as an alternate means of achieving it – a social demand for the implementation of a Tobin tax might enable UN operations to be funded independently of powerful donor states. The four types of global representation, therefore, might open up new possibilities for United Nations reform.

Third, we outline various possibilities for how citizens might restrict the use of force on the part of states. In short, transnational pyramidal networks may consolidate anti-war sentiment, making pre-emptive war increasingly politically infeasible. Pyramidal networks might also enable the democratisation of war powers; i.e. where national referenda were required in order for states to declare war. Pyramidal networks might also enable military personnel to unionise and, in combination with civil society, aid in the formation of a UN standing army or a rapid response force. Each of these possibilities increases the feasibility of citizens authorizing military intervention on the basis of the Responsibility to Protect and, more importantly, facilitating post-conflict reconstruction that would be sufficiently inclusive and appropriately resourced. Taken together then, these possibilities might facilitate a transition towards global peace.

These three components thus comprise a citizen-based schema of global governance, which we argue might meet the requirements for distributive justice, peace, and environmental sustainability. Meeting these conditions could, in turn, enable the democratisation of the global economy and the realisation of greater social justice.

7.2 GLOBAL REPRESENTATION

In this section, we outline four types of global representation that might be facilitated by means of transnational pyramidal democracy. First, we argue that pyramidal networks may enable social movements, trade unions, and community organisations to join forces. This would create so-called social movement unions (SMUs). The World Social Forum in combination with transnational pyramidal networks, we argue, could be the mechanism by which large SMU configurations might form. Second, we argue that transnational pyramidal networks might make possible the creation of transnational political parties – parties that have a single manifesto but that contest local and national elections

across more than one country. Both these forms of representation are envisaged to be *progenitors* of social demands; i.e. they might allow citizens to aggregate their preferences and thus form social demands for the implementation of global-level policy.

Third, we argue that transnational pyramidal networks might enable the strengthening and integration of pre-existing Interparliamentary Institutions (IPIs). This might create a direct link, then, between local citizens and structures of global decision-making. Fourth, we argue that transnational pyramidal networks might enable the formation of a *sui generis* People's Assembly – an institution where global citizens can debate and deliberate directly over their preferences and concerns. Such an assembly would be *sui generis* – unique or without precedent – because it could be formed independently of intergovernmental input or agreement. These two forms of representation are envisaged as the *recipients* of social demands; i.e. IPIs and a People's Assembly link the social demands of citizens to the respondents to those demands – states, elected officials, and corporations, for example.

These four different types are not mutually exclusive. Indeed, they all form the basis for a potentially new model of global governance, one premised on linking local citizens to global decision-making by means of transnational pyramidal networks. These four types of global representation, therefore, form the bedrock component in what we call a *citizen-based schema of global governance*; a model of global democracy where the citizen replaces the state as the key unit of analysis. United Nations reform and restrictions on the use of military force, as we outline later, are the two other components to this schema.

The success of each form of representation is somewhat linked to the uniformity of the social demands that citizens make. In other words, an SMU configuration or a transnational political party might be more successful if it advocated only for a specific set of policies. Similarly, a People's Assembly might avoid fragmentation and petty argument if it could focus on a set of proposals that enjoyed broad citizen support in every constituent country. Finally, an IPI might be more effective if it mediated between civil society and states based on a coherent set of social demands, and not on broad issues of social justice or national discontent. In this sense, then, we are suggesting that the four types of global representation are more feasible under conditions of a *joint manifesto*.

By joint manifesto we mean a set of more or less coherent social demands upon which there is – or could be – broad citizen support across the world. In the following chapter we outline our proposal for a democratised global economy, which comprises six components: participatory budgeting, redistributive fee-and-dividend taxes, universal basic income, monetary and investment reform, workplace democracy, and the sharing economy. Implementing each component would require

citizens to make a coherent and legitimate social demand – some of which must be made at the global-level. In the following chapter, we argue that the six components might constitute a feasible joint manifesto; i.e. a set of social policies that might enjoy broad citizen support. If this assumption is correct, then the components might facilitate the development of the four types of global representation. For the time being, however, we should note only that the four types are more likely to be successful under conditions of a joint manifesto or some coherent but limited set of social demands.

7.2.1 Social Movements and SMU Configurations

Social movement unionism (SMU) is the idea of creating coalitions among social movements, trade unions and community organisations, all coordinating democratically in order to implement social change[112]. Waterman (1993: 266-7) suggests that the definition of a SMU is found in a series of ten propositions, which we can condense and paraphrase as such: A SMU is that which is…

1) Struggling "within and around waged work" and for more than just better wages or working conditions; involving itself with all aspects of the labour process, including investments, training, relocation, market strategy and stakeholder impact; doing so through dialogue and common action, and taking into account the interests and concerns of other (non-labour) social movements in order to "avoid conflicts and…to positively increase the appeal of…demands".
2) Struggling against hierarchical, authoritarian, and technocratic working methods and relations; struggling for "socially useful products", for reductions in working hours, for the equitable distribution of that which is "available and necessary", for the sharing of domestic work, and for an "increase in time for noneconomic activity for cultural self-development and self-realization".
3) Is "intimately articulated" with other non-unionized, non-labour collectives; with political forces; and with any other potential ally as an "autonomous, equal and democratic partner".

[112] Robinson (2000) argues that neoliberal restructuring has shifted trade unions in the direction of SMUs. See also Moody (1997), who calls for an international social-movement unionism, and Turner and Hurd (2001) who suggest that social movement unionism holds the potential to revitalize the American labour movement. Note, also, that transnational SMUs bear some relation to "transnational advocacy networks" (Keck and Sikkink 1998, 1999; Carpenter 2007) which include "actors working internationally on an issue" and who are "bound together by shared values, a common discourse, and dense exchanges of information and services" (Keck and Sikkink 1999: 89). An SMU configuration, enabled by pyramidal democracy, might resemble a complex transnational advocacy network, but one in which "gatekeepers" (Carpenter 2010) would be unable to choose which issues were or were not adopted.

4) Favouring grassroots, direct, “shop-floor”, community-orientated democracy, premised on some form of international solidarity.

Our argument in this subsection is two-fold. First, the World Social Forum – held annually over the same dates as the World Economic Forum – provides a mechanism by which to generate SMUs. Second, pyramidal networks and democratic mechanisms could provide the means by which to combine these SMUs and thus create what we call SMU configurations. If our basic assumptions about pyramidal networks are correct, then SMU configurations might become large enough to enable citizens to make social demands at the global-level.

The World Social Forum (WSF) is an annual meeting of civil society organisations and activists, created to be an “open space” for the discussion and articulation of alternative visions of global change and justice. The WSF was deliberately conceived as a counterpart to the World Economic Forum which is held annually in Davos, Switzerland. Each year the WSF attracts tens of thousands of participants from the global ‘left’ (Teivainen 2002). What is “different” about the WSF, according to de Sousa Santos (2008: 250), is its inclusiveness, bringing together local, national and global movements in an “inter-thematic or even trans-thematic” dialogue. If the WSF is a “movement of movements”, de Sousa Santos continues, then it is not simply one more social movement, it is “a different kind of movement” (ibid). In organisational terms, it is the “the most consistent manifestation of counter-hegemonic globalization” (249), hence the organisation’s slogan of ‘Another world is possible’.

The WSF, however, is not a political movement itself. According to its charter, the WSF does not make statements or release consensus positions as an organisation. Hence, it tries to be a space devoid of politics and power struggles, especially when it comes to the views and positions of its diverse membership. Relations of power, however, cannot simply be “fantasized away” (Teivainan 2015: 56). The claim of the WSF to be a depoliticized space helps to occlude differences in power between different attendees, specifically NGOs from the global north and those from the global south (ibid). Amidst these tensions, then, two questions have dogged the WSF: how to make its processes more democratic, and to what extent should it abandon the idea of being a depoliticized “open space”.

We suggest that pyramidal networks can solve both these problems. By integrating WSF members – both individuals and organisations – by means of pyramidal networks it might be possible to democratise the processes of the WSF. Moreover, pyramidal networks could be used to ‘spin off’ SMU configurations – comprising attendees to the WSF – which might then lobby for the implementation of policy at the national or global level.

In support of this view, consider that most non-local attendees to the WSF are: 1) affiliated with a political or religious organisation; 2) are in a "leadership or paid position"; and 3) intend to "report back" to their organisation about their experiences at the WSF (Reese et al 2015). These findings support the contention, then, that participants in social movements – rather than being well-meaning but socially isolated – are instead generally "well-integrated" within their organisations and that such organisations provide resources and incentives for their mobilisation (70). The picture that emerges, then, is of the WSF as a kind of 'global trade show' for social movements and the global left.

Hence, our interest in this organisation. If the WSF is a kind of 'trade show' for social movements, and if most attendees report back to their organisations, and if most attendees are generally in favour of a transition towards global democracy (Chase-Dunn and Reese 2007; Reese et al 2015), then the WSF may form the kernel – in conjunction with pyramidal democracy – for the global representation of social movements, trade unions and community organisations. Thus, the WSF may facilitate the creation of SMU configurations. As Teivainan (2015: 60) notes, many WSF participants, after repeating the slogan 'Another world is possible' in "forum after forum", are keen to know what that other world might look like and how to get there. Or, as Patomäki (2011: 88) observes, "how could it be true that 'another world is possible' without some sort of transformative agency?" Pyramidal democracy – and a set of coherent social demands formulated by means of deliberation – may be the transformative agency needed to get to that new world.

As Teivainan (2015: 62) muses, it is unclear whether the WSF itself should become a more politicized and coherent social movement, or whether "its most important role is to give birth to new forms of political action". We would argue for the latter course. It might be valuable for the WSF to remain an "open space" whilst capitalizing on its inclusiveness in order to 'spin-off'[113] SMU configurations large enough to make credible social demands at the national or global level. Such configurations might be most effective if they focussed on a limited set of demands – a redistributive fee-and-dividend Tobin tax, for example[114] – rather than a grand manifesto of ideas. Focussing on a limited set of demands might allow the configuration to avoid disagreement and thus maximise its reflexive legitimacy.

[113] The Italian NRPTT (Nonviolent Radical Party, Transnational and Transparty) operates in this manner. Over the years it has focussed primarily on single-issue representation, using referenda and public campaigns to aggregate preference about an issue and to increase public awareness. This modus operandi has, as a result, "spun off over the years a galaxy of single-issue movements and associations"; a "varied, multi-faceted supply of representation for different types of preferences and rights" (Radelli and Dossi 2012: 71). Thus, rather than a social movement with a single manifesto, the NRPTT is instead a mechanism for generating social movements.

[114] It is noteworthy that roughly 80% of WSF attendees already support the implementation of a Tobin tax (Reese et al 2015: 77).

Whatever the scope of agreement may be, part of our claim is that SMU configurations could become *progenitors* of coherent sets of social demands or, ideally, some kind of *joint manifesto*.

The attendees to the World Economic Forum, in a somewhat ironic twist, would represent ideal respondents to such a manifesto. In other words, if a large transnational SMU configuration were to form, then the World Economic Forum would be an ideal venue by which social demands might be articulated and discussed. In other words, Davos might be the perfect place to engage various state officials, corporate CEOs, and professional economists in a debate over national and global policy.

As Standing (2002: 203) notes, we need a mechanism to "enable *all* groups [in society] to put pressure on the powerful to redistribute the gains of growth". Thus, if WSF attendees could be integrated into pyramidal networks or democratic mechanisms, and if they could agree on some set of policies or social demands, then the formation of large transnational SMU configurations seems feasible. Teivainen (2015: 59) argues that the "political" in the WSF needs to be "embraced, resignified, and used to create conditions for a more democratic world". We would suggest that pyramidal networks might facilitate this possibility and thus engender a new form of global representation: transnational SMU configurations.

7.2.2 Transnational Political Parties

As the examples of the WSF and the NRPTT (Nonviolent Radical Party, Transnational and Transparty[115]) suggest, SMU configurations are not the same as transnational political parties. While the former might act as lobbyists and watchdogs – pushing for the implementation of a single social demand or of a joint manifesto – the latter would seek to contest local or national elections in order to see such policies implemented. Hence, the key difference, to our minds, is that a transnational political party would compete in elections. Nothing prevents, of course, an SMU configuration from evolving into a political party – which Patomäki (2011) suggests may be a desirable outcome for the WSF – but differentiating the two types of representation remains useful. Our main argument in this subsection is that transnational pyramidal networks might facilitate the formation of transnational political parties, thus facilitating a new form of global representation.

Although there is "not much to say" about transnational political parties (Lawson 2006: 489, cited in Radelli and Dossi 2012: 67), ostensibly because they do not really yet exist, we can draw attention, as

[115] Transparty refers to the fact that the party has had, since 1989, members which are MPs or MEPs from different countries and from different parties (Radelli and Dossi 2012: 75).

examples of precedent, to the pan-Arabism of the Arab Socialist Ba'ath party[116], the partial trans-nationalisation of green parties around the world[117], and to the pan-European orientation of DiEM25 (Democracy in Europe Movement 2025). Of these three, we focus on DiEM25 as the most recent and most coherent example of a transnational political organisation.

DiEM25 was formed in February 2016, in the late aftermath of the financial crisis and in response to Greek Prime Minister Alexis Tsipras signing a third bailout agreement, despite the Greek people voting "loudly and clearly" against such an agreement (Panayotu 2017: 7). Yanis Varoufakis, Greece's Finance Minister at the time, promptly resigned and helped to launch DiEM25. According to Panayotu, DiEM25 is an example of transnational populism – populism here referring to an "anti-status quo discourse that simplifies the political space by symbolically dividing society between 'the people' and its 'other'" (Panizza 2005: 3). This is particularly clear in DiEM25's manifesto where 'the people' are constantly juxtaposed with the 'other'; i.e. the "powerful Eurogroup", the "Brussels bureaucracy" and the "bailed out bankers" (DiEM25 2018b). Be this as it may, however, DiEM25 promotes an idea of a demos that is "inclusive, active, democratic and transnational" (Panayotu 2017: 15)[118].

In terms of its manifesto, DiEM25 has three overarching goals or demands (DiEM25 2018b): 1) full transparency within EU decision-making, by means of live video feeds of meetings and the uploading of all documents to the web; 2) addressing at a pan-European level the five crises of public debt, banking, inadequate investment, migration, and rising poverty; and 3) the implementation of a sovereign Constitutional Assembly which would share power with national parliaments and local municipalities. Regarding the Assembly, moreover, DiEM25 (2018b: 7-8) aims to promote a system where representatives are elected on "transnational tickets"[119]. DiEM25 thus considers the current

[116] Although providing a poor example of an emancipatory and democratic transnational political party, the history of the Ba'ath Party does create an important precedent, in the sense that the party successfully acquired power in two separate nation-states – Syria and Iraq.

[117] The Global Greens network comprises 75 separate green parties from around the world as full members, and 19 additional parties as associate members (globalgreens.org). The goal of the network is to coordinate strategies – based around a "Global Green Charter" – in order, ostensibly, to aid in the election of green party representatives in member party countries.

[118] This positive conception of its constituents perhaps separates, then, this form of transnational populism from emptier and more "thin-centred" conceptions of populism (Mudde 2004: 543-4, cited in Panayotu 2017: 2). Note that DiEM25 has a participatory and deliberative vision of democracy where citizens "convene locally" in the "spirit of self-organisation" and in the style of "Townhall meetings" in order to discuss and propose policy (Varoufakis 2016). Recommendations, concerns and suggestions will then filter up to the DiEM Assembly and be compiled into coherent proposals, which will be finalized by means of an organisation-wide vote facilitated by means of "DiEM's digital platform" (ibid). Hence, DiEM25 has a means, in theory at least, of avoiding the "major hazard" created by the tensions between radical democracy and representation (Panayotu 2017: 14); i.e. it plans to democratise its party-political system.

[119] DiEM25 is moving quickly towards implementing this idea is practice. In late 2017, members voted overwhelmingly in favour of creating an "electoral wing", which would mean registering political parties within EU member states and thus competing directly in national-level and European-level elections (Nielsen 2017;

model – where national parties form "flimsy alliances at the level of the European Parliament" – to be obsolete. European democrats should, instead, "come together first, forge a common agenda, and then find ways of connecting it with local communities at the regional and national level" (ibid). DiEM25 is suggesting, therefore, the development of a transnational European party system.

Our contention is that pyramidal democracy might facilitate the rapid expansion of membership in an organisation like DiEM25, particularly by means of pyramidal networks in each member state of the European Union (EU) or, alternately or even simultaneously, a single EU-wide pyramidal network. In other words, pyramidal democracy might help DiEM25 to rapidly meet its stated goals of "comprehensive Transparency, real Solidarity and authentic Democracy" (DiEM25 2018b: 8). What we are suggesting here, then, is that, if DiEM25 represents a shift towards a new type of regional and global political representation, then pyramidal democracy might be the mechanism by which to rapidly realise that new type of representation in practice.

DiEM25, moreover, presents a coherent model and precedent for truly transnational political parties. There is no *prima facia* reason why, for example, a transnational political party could not exist that contested elections at the local, national and regional level. Indeed, the three overarching goals of DiEM25's manifesto, with only minimal adaptation, would work at the global level: 1) full transparency within national decision-making, by means of live video feeds of meetings and the uploading of all documents to the web; 2) addressing at the global level the five crises of public debt, banking, inadequate investment, migration, and rising poverty[120]; and 3) the implementation of a directly-elected UN General Assembly[121] which would share power with national parliaments and local municipalities. DiEM25, therefore, provides us with a template for a truly transnational political party.

Thus, if we accept that pyramidal democracy might enable DiEM25 to be successful at the EU level, then it seems feasible that pyramidal democracy might do the same for a political organisation operating at the global level. Our contention, then, based on the example of DiEM25 is that pyramidal democracy – by means of country-specific pyramidal networks and global-level wheel configurations – might facilitate the formation of transnational political parties. Moreover, the more that such parties could "aggregate the real-world requirements of the less developed nations" (Kreml and Kegley 1996:

DiEM25 2017, 2018a). Thus, although billing itself as a democratisation movement rather than a party, DiEM25 is fast becoming something more akin to a transnational political party

[120] Notice the similarity, here, between these objectives and the components of a democratised economy that we outline in the following chapter.

[121] This manifesto goal speaks to the idea of formal global governance, or even a transition towards world government. We deal with this idea in a later section but, at this point, we should note that no such requirement or manifesto objective would be necessary for the successful creation of a global political party; i.e. the first and second overarching goals are sufficient.

129) – identify common interests – the more successful they would likely be. Hence, the success of transnational political parties depends on a new kind of universalism – different from the rationalist and utilitarian universalism of the past and present (ibid). A joint manifesto based on a democratised global economy may provide this new kind of universalism.

It is noteworthy, however, that the creation of a transnational political party would not necessarily create a *transnational party system*. A party system, according to the classic definition of Sartori (1976: 44), is a "system of interactions resulting from inter-party competition" where parties compete directly with one another and thus each party is a "function" of the other in the sense that, together, they form an interactive system with well-defined boundaries and objectives Although a transnational party competing at the national level – DiEM25 in Germany, for example – would form part of the *national* party system in Germany[122], it would not necessarily form part of a trans-European party system.

This criterion should be met, automatically, whenever one or more transnational parties compete with other parties at the national or local level; i.e. the transnational party would form part of the national or local party system. This is not to say, however, that a *transnational party system* would exist. For this to happen, a "fusion of powers" at the European level would be required whereby transnational parties could compete for executive office (Bardi et al 2010). In other words, because no executive office exists at the level of the EU, no truly trans-European party political could develop.

What this means, for our purposes, is that, while pyramidal democracy might facilitate the development of transnational parties, a transnational party system would require some instantiation of direct legislative or executive governance at the global level – a "fusion of powers" – for which such parties could compete. A world parliament with meaningful legislative powers might meet this requirement and help usher in a truly transnational party system. A world parliament, however, would not be necessary in order for a transnational party to contest local and national elections in countries across the world, provided that the citizens in said countries were suitably united by some kind of joint manifesto. As Tännsjö (2008: 83) suggests, transnational political parties need not be "all-encompassing". Instead they could focus simply on addressing the problems of peace, international justice, and the environment.

Over all, then, our contention is that pyramidal democracy could facilitate the formation of transnational political parties that contested elections at the local and national level in more than one

[122] As Tännsjö (2008: 83-4) notes, "It is also to be expected that, when transnational political parties dedicated to global problems develop, traditional national parties will not just abdicate from the scene. They will also take part in the global discussion and, in competition with global parties, present candidates in the elections".

country. We would argue, based on the example of DiEM25, and if pyramidal democracy provided some threshold of solidarity, transparency, inclusiveness, and engagement, that transnational political parties may become increasingly feasible. Such parties could be both the progenitor of a joint manifesto, and, if elected to office, the representatives of the demands comprising that manifesto. Hence, transnational pyramidal networks might facilitate a new form of global representation – transnational political parties – which are possibly the "next instrument of the world's dialectical progress" (Kreml and Kegley 1996: 133).

7.2.3 International Parliamentary Institutions

International Parliamentary Institutions (IPIs) are institutions comprising parliamentarians from multiple countries who cooperate with a view to "formulating their interests" and adopting "decisions, strategies or programs". These decisions, strategies or programs are then implemented or promoted at the national or international level, formally or informally, by means of "persuasion, advocacy or institutional pressure" (Sabic 2008: 258). More than 70 different IPIs exist, with the oldest being the Inter-Parliamentary Union (IPU) which was created in 1889 and whose membership comprises the parliaments of 178 countries[123]. Other important examples of IPIs are the EU parliament (before it gained legislative powers and adopted direct elections), the NATO Parliamentary Assembly, and the African Parliamentary Union.

Although the academic literature pays little attention to IPIs (Cutler 2001), they have engendered a new form of diplomacy called 'parliamentary diplomacy'[124] and thus offer an effective balance between legitimacy and effectiveness (Sabic 2008). Our argument in this subsection is that transnational pyramidal networks might empower IPIs in the following ways: First, by democratising IPIs by ensuring that every parliamentarian has a voice. Second, by linking parliamentarians directly to their constituents by means of pyramidal networks – and thus linking local citizens to global

[123] The IPU claims to have two "overarching goals": building strong, democratic parliaments and mobilizing them around the "global development agenda" (IPU 2016). Although the IPU represents a potential step towards a more democratic and legitimate form of global governance, the IPU meets in a 4-day Assembly only twice a year with member states sending between 8 and 10 delegates each. Hence, the IPU is somewhat limited in the role it can play directly in democratic global governance. It does have, however, permanent observer status and a special "Cooperation Agreement" between itself and the UN.

[124] Parliamentary diplomacy can be thought of as the "full range of international activities undertaken by parliamentarians" in order to "increase mutual understanding between countries", and to increase the legitimacy and accountability of both national governments and inter-governmental institutions (Weisglas and De Boer 2007: 93-94). Thus, the two major functions of such diplomacy are "scrutiny of the executive", on one hand, and traditional interstate diplomacy on the other (ibid). Fiott (2011: 6) notes that the traditional weaknesses of parliamentary diplomacy – that parliaments often have no formal power in the international realm – are also its strengths, thus allowing this form of diplomacy to be an "innovative means to defuse crises and build political trust over the longer-term".

decision-making. Third, by facilitating a social demand for IPIs to be integrated into formal structures of global governance.

First, pyramidal networks could democratise IPIs by enabling individual parliamentarians to engage in deliberation and debate, thus making IPIs more inclusive of their total membership. The IPU, for example, meets in assembly only twice a year, with each member state sending between 8 and 10 delegates to represent all the parliamentarians of that state (IPU 2016). If we assume that an average-sized parliament consisted of 400 seats, then the IPU ostensibly represents 70 000 parliamentarians. Yet, the biannual IPU assemblies comprise less than 2000 attendees. Pyramidal networks, however, might enable all parliamentarians in all member states to engage permanently in policy debate; i.e. sit in more or less permanent session.

Moreover, the delegates to face-to-face assemblies would be democratically selected by means of pyramidal processes – the top-tier delegates would become attendees of face-to-face assemblies. Hence, the capacity of parliaments to influence international decision-making might be enhanced by the strengthening and integrating of IPIs (Slaughter 2004). This might facilitate the spread of awareness and norms, helping to institutionalize progressive forms of global governance, as the Parliamentarians for Global Action did by lobbying for the creation of the International Criminal Court (Glasius 2002). The process could also operate downwards; i.e. members of IPIs could lobby their own domestic parliaments to rethink old policies, like the Spanish members of the Parliamentary Forum on Small Arms and Light Weapons did successfully in their own parliament with regards to arms trafficking (Sabic 2008).

Second, pyramidal networks could link local citizens directly to global-decision-making. The more that individual parliamentarians were elected by means of pyramidal democracy, or the more that individual parliamentarians communicated with their constituents by means of pyramidal networks, the more directly citizens would become linked to global decision-making. In this sense, the local citizen might be connected, via a pyramidal network, to her local parliamentarian, and that parliamentarian might be connected, via an IPI pyramidal network, to structures of global governance. Given that a citizen was incentivised to lobby their parliamentarian to implement policy at the global-level[125], then pyramidal networks may provide an effective means of enabling such lobbying to influence policy-making at the global level.

Moreover, as Cutler (2001: 202) argues, the parliamentary diplomacy engendered by IPIs represents an "important middle ground" between traditional inter-state diplomacy and the transnational

[125] The more entrenched that SMU configurations became – and the more consensus they achieved on a joint manifesto – the more incentivised citizens might become to lobby their parliamentarians for specific policies.

cooperation among grassroots NGOs. The more that parliamentarians became linked to their constituents via pyramidal networks, the more feasible it might become to develop this middle ground. Parliamentary diplomacy, therefore, may be an ideal means by which to mediate between SMU configurations – the progenitors of social demands – and governments – the respondents to such demands.

Third, IPIs empowered by pyramidal networks might become integrated into formal structures of global governance over time. Noting the contribution of Falk and Strauss (2011), Crum and Fossum (2013: 2) muse that "ultimately", one could envisage IPIs as constituting "a globe-spanning network with a United Nations Parliamentary Assembly at its Pinnacle". The case of the EU parliament, moreover, sets a precedent for an IPI transforming into a directly-elected body with legislative powers (Crum and Fossum 2013: 5). Following this model, then, if the 70 or so currently-existing IPIs could be strengthened and integrated, they might form the kernel of a directly elected world parliament with legislative powers.

Because parliamentarians could not be expected to indefinitely 'pull double duty' – i.e. represent their constituents at both the national level and the global level – IPIs may gradually transition towards direct election. In other words, pyramidal networks might provide a means of phasing in the direct election of citizens to IPIs in a transparent, accountable and legitimate fashion. Thus, just like fossils are formed when mineral-rich groundwater fills the gaps and spaces in organic matter, so the organisational structures of IPIs might be retained whilst pyramidal democracy enabled them to gradually become occupied by means of direct-election. IPIs could thus be a pathway by which to develop democratic institutions of global governance, a World Parliament being a key example.

These three possibilities speak to how pyramidal networks might empower and democratise IPIs, thus harnessing their "overlooked" potential to facilitate global governance (Sabic 2008: 267). IPIs that were more inclusive and democratic might become empowered both 'upwards' and 'downwards'; i.e. lobbying for new institutions or policies at the global-level and lobbying domestic parliaments to rethink old policies or adopt new ones. The more that individual parliamentarians became connected to their constituents, moreover, the more influence local citizens might have on global decision-making. These networks might also allow IPIs to mediate between civil society and the state, especially if such mediation involved large SMU configurations with complex sets of social demands. Finally, empowered and integrated IPIs may enable the formation of a World Parliament, or other institutions which enabled citizens direct access to international decision-making. All in all, while SMU configurations and transnational parties may be the key progenitors of social demands, IPIs may become the key representatives of such demands – linking citizens with global decision-making.

7.2.4 A People's Assembly

The final new form of global representation is a People's Assembly comprising civilian representatives from each nation in the world. Our key contention is that pyramidal democracy makes this possible, without either the input or consent of the individual states that comprise the United Nations. All that is required, in essence, is for citizens to recognise a single pyramidal network, or wheel configuration, as a legitimate structure for representing themselves at the global level.

In this sense, if each nation-state were to form a single 'People's Assembly' pyramidal network, then the top-tier delegates of those pyramids would, *de facto*, constitute a democratised and representative People's Assembly (PA). The extent to which such an assembly would or could be integrated into formal structures of global governance is a topic to which we return in the next section. For our immediate purposes, we should simply acknowledge that – if our general assumptions regarding pyramidal networks are correct – than nothing would prevent the creation of a people's assembly independently of state approval or United Nations reform.

Thus, under conditions where a PA was formed by means of transnational pyramidal networks, we would argue that it would be a *sui generis* geopolitical entity[126]; i.e. created spontaneously and not part of intergovernmental agreement. As we argue in the following section, the fact that such a PA is *sui generis* might open up new possibilities for United Nations reform.

Recall that, in Chapter 5, we noted the feasibility of implementing state-level pyramidal networks and thereby creating Popular Branches of the government that would give citizens a more direct voice in the governance of the nation-state. The same state-level networks might be the means by which a PA were formed at the global level. We also suggested the possibility of distributed government, where individual pyramidal networks formed for each ministerial portfolio, linking directly the preferences of citizens to different portfolios. Given the advent of a Global portfolio within each government, then, such networks might also be the means by which to implement a PA.

One way of accelerating the development of a People's Assembly, furthermore, would be to harness Model United Nations (MUN) initiatives around the world by means of pyramidal networks. Model United Nations are often used in schools and universities in order to introduce the concept of international relations and to teach critical engagement, debating skills, and global citizenship

[126] By sui generis – Latin for 'unique' or 'only one of its class' – we are referring to the fact that a self-organised People's Assembly comprising citizen representatives from every country would be an institution without precedent. For more context on the use of the term, consider that the European Union is often considered a sui generis organisation, in the sense that it is a "self-contained regime" which is neither federation or confederation (Phelan 2012).

(MacIntosh 2001; Kirkwood-Tucker 2004; Dittmer 2013). Moreover, multiple NGOs exist that promote MUN activities and have formal or informal links to the UN itself (see, for example, nmun.org, imuna.org). By harnessing the MUN model in conjunction with pyramidal democracy and wheel configurations, students and citizens might be able to create thousands of virtual 'copies' of the General Assembly[127]. Alternately a single 'copy' of the General Assembly could be created by merging country-specific networks into a single configuration.

If the MUN model successfully formed the kernel of a future PA, and if more citizens were to participate in such fora over time, and if they were integrated in such a way as to create a single 'legitimate' copy of the General Assembly, then a democratic People's Assembly would have been created. The more focussed the questions discussed by a PA, the greater the likelihood of coherence and consensus. For instance, the existence of a coherent set of social demands or a joint manifesto might facilitate consensus, while the absence of a clear agenda might serve to stoke national rivalries and tensions. In this sense, then, there is no guarantee that a PA would be more or less progressive or effective than the General Assembly.

The larger and more consolidated that SMU configurations and transnational political parties became, however, and the more democratic and empowered IPIs became, the more likely that citizens would be incentivised to participate in the formation of a PA. If such a PA were large enough to be legitimate in the eyes of citizens themselves, then it would constitute a *sui generis* People's Assembly. Transnational pyramidal networks, therefore, might enable the formation of a new form of global representation: A People's Assembly.

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In this section we have outlined four new forms of global representation made possible by transnational pyramidal networks. The first two – SMU configurations and transnational political parties – we understand primarily as progenitors of sets of social demands or, ideally, a joint manifesto. In other words, these forms of representation may enable global citizens to reach consensus and thus produce a coherent set of social demands. IPIs and a People's Assembly, under this line of reasoning, would thus become the representatives of such a set of demands, tasked with finding appropriate respondents and pushing for the implementation of policy at the global-level.

[127] In one possible format, each 'copy' would be a pyramidal network of some 193 representatives, each one being a student from a university or school in a different country. Hence, by means of pyramidal networks, we might be able to simulate hundreds or thousands of 'copies' of the General Assembly. An alternative format would be if the students in each country formed a single network, with the top-tier delegates becoming, then, that country's UN 'delegation'. Both formats speak to the possibility of using MUN as the kernel of a future People's Assembly.

Taken together, these four kinds of representation comprise the bedrock of what we call a citizen-based schema of global governance. The core characteristic of this schema is the replacement of the state with the citizen as the key unit of analysis. Each form of representation is rooted in the 'local' and each has what Gill (2008: 248) calls a "multiple and capillary form". The picture that emerges is one where the civil society and government spheres are gradually colonised by a series of transnational pyramidal networks that help to link local citizens to global decision-making.

Gill suggests that globalised movements – be they political parties, educational forums, or cultural movements – may, after Machiavelli, form the basis for a new "post-modern Prince"; to our understanding a centre of power by which or to which world affairs might be ordered. Given a certain threshold of integration and legitimacy, the four forms of global representation – SMU configurations, transnational parties, IPIs and a People's Assembly – might form such a centre of power. According to Gill (2008: 248), a new post-modern Prince may be the most "effective political form for giving coherence to an open-ended, plural, inclusive and flexible form of politics and thus create alternatives to neo-liberal globalization".

In the following section we develop the second component of our citizen-based schema of global governance by arguing that the four forms of global representation – a People's Assembly in particular – may open up new possibilities for United Nations reform.

7.3 Global Governance Reform

In the previous section we have presented an argument as to how pyramidal democracy might enable new forms of global representation. In this section, we argue that these new forms of representation might enable United Nations reform, such that it becomes more effective, more transparent, and more accountable to the global demos. We also examine briefly the reform of international financial institutions (IFIs), like the IMF and World Bank. Our general position, however, is that, if it is possible to reform the UN, then it is similarly possible to reform IFIs.

UN reform is a recurring theme in the global governance literature (Held 1995; Tännsjö 2008; Falk 2014). Three broad aspects of reform can be identified: General Assembly reform, UN Security Council reform, and financial reform. In terms of the general assembly, the key arguments are that it should be made democratically accountable to citizens and that it should acquire legislative powers of some kind. Reform of the General Assembly might also include the creation of a People's Assembly that would have either advisory or legislative powers. Our main argument, which we develop below, is that pyramidal networks could facilitate General Assembly reform, from the bottom up, by means of

bringing into existence a People's Assembly as a *sui generis* geopolitical entity; i.e. created spontaneously and not part of intergovernmental agreement. On this basis, we suggest that transnational pyramidal networks create new possibilities for General Assembly reform.

Regarding the United Nations Security Council (UNSC), the key obstacle is the veto, a relic of the Second World War and a "Faustian bargain" necessary for bringing the organization into being (Falk 2014: 56). Because any changes to the UN system requires ratification by the UNSC, any change that it not in the interests of the five permanent members can be vetoed. Hence, one of the key obstacles to reform is the fact that the permanent members are unlikely to relinquish their power to decide the rules. Our main argument here is that a reformed General Assembly could apply sufficient pressure to reform the UNSC. While UN reform has historically been a victim of a chicken-and-egg problem – i.e. UNSC reform is necessary for General Assembly reform, and vice versa – the creation of a *sui generis* People's Assembly could break this cycle. In other words, a democratised General Assembly would mean that citizens, rather than states, became the source of legitimacy in global governance, highlighting the injustice of the veto and thus creating space for reform.

In terms of funding, the United States has always contributed a disproportionately large part of the costs of the UN operational budget. Unfortunately, it has often used this power to limit the effectiveness and independence of the UN system, selectively funding or defunding UN bodies in accordance with its geopolitical interests. Furthermore, many countries, including the USA, are often in arrears and thus plunge the UN system into chronic financial crisis. Under these conditions, long-term strategies are difficult to develop and a cadre of permanent, well-skilled and well-paid employees difficult to recruit.

Moreover, UN bodies are forced, when funding is used to influence policy, either to abandon projects or to compromise their independence. Our main argument here is that, given the relatively miniscule budget of the UN, that a democratised General Assembly – and a democratised public sphere – open up new possibilities for independently funding the UN. Specifically, a small fraction of the total receipts from a Tobin tax would be sufficient for funding the UN system. A democratised General Assembly – responsive to social demands made by transnational SMU configurations – might have sufficient legitimacy to implement such a tax and thus ensure the independent funding of UN operations.

As Luck (2005: 410-11) would have it, any student of UN history knows that "political convergence precedes institutional change, not the other way around". In other words, meaningful UN reform is contingent on political factions forming that are powerful enough to force institutional change. Under present conditions, such factions are unlikely to form because UNSC permanent members use their positions to ensure that they do not. Hence, "if six decades of trying to reform the UN have a central

lesson", Luck continues, then it is that "modest expectations are in order". Although broad packages of reforms are proposed, they are never adopted; not least because some reforms are "more politically ripe than others" and nations are prone, therefore, to pick and choose those that suit their interests (411-12). More bluntly, Kennedy (2006: 271) observes that "proposals from the Left – to fully 'democratize' the United Nations – have no prospect of acceptance by the established powers". Under present conditions, we might agree with these assessments.

Our prime contention in this section, however, is that transnational pyramidal networks could create a *de facto* People's Assembly that could, in turn, force the reform of the General Assembly. A reformed General Assembly, in turn, could open up space for reform of the UNSC and the funding of the UN system. As Tännsjö (2008: 98) notes, UN reform might be possible if two important provisos are satisfied. First, that demands for reform come from the "world population as a whole" and not just from governments. Second, that reform starts from the basis of a democratically elected Peoples' Assembly. This is exactly what we suggest is possible by means of pyramidal democracy.

7.3.1 General Assembly Reform

We examine three ideas under the rubric of General Assembly reform: A People's Assembly, the General Assembly itself, and a World Assembly (parliament). As we have outlined above, our key argument is that transnational pyramidal networks could enable the creation of a *sui generis* People's Assembly that would link each global citizen, in a direct sequence of delegate chains, to his or her global delegate. In this formulation, then, a "UN" pyramidal network would be created in each nation-state and the top-tier delegates of these 190+ networks would then form a new pyramidal network with between three and four tiers[128]. The top-tier of this People's Assembly would thus form a kind of *de facto* Security Council.

If our general assumptions regarding pyramidal networks are correct, then nothing would prevent a pyramidal People's Assembly from forming. Due to the mechanics of pyramidal networks, moreover, it might automatically be considered legitimate because delegates would have been sequentially elected at each tier of the pyramid, thus fulfilling the requirement of direct elections in a People's

[128] This is just one possible configuration. One alternative would be a truly distributed People's Assembly constituted by one global network rather than being nation-state specific. Language differences, however, may prevent this from being feasible. The key concern is not the characteristics of the configuration, but the possibility of its creation independently of government control. There is also an issue here regarding China or other non-democratic or authoritarian regimes. There may therefore be large 'gaps' in a People's Assembly to begin with. Given a threshold of legitimacy, however, these gaps might be filled by other means; i.e. China might put forward its own 'democratically selected' representatives. Whatever the case may be, it seems feasible that a People's Assembly could be formed that would be broadly representative of global citizens, and thus broadly legitimate.

Assembly for which some scholars advocate. As with all pyramidal networks, the legitimacy of a People's Assembly would depend ultimately on its size and the level of activity of its constituent members. To our mind, five assertions support the possibility of a People's Assembly large enough to be legitimate:

1. Given that citizens were broadly familiar with pyramidal networks, due to their increasing adoption in the market, government and civil society spheres; and
2. Given SMU configurations that actively encouraged citizens to join 'UN' pyramidal networks; and
3. Given the existence of one or more Global Political Party that actively advocated for UN reform; and
4. Given the fact that citizens at the base of the pyramid would not need to constantly participate in decision-making but simply legitimise the selection of citizen decision-makers; then
5. It seems feasible that a People's Assembly could form that would be large enough to be legitimate; i.e. comprising, say, 5% or more of each country's population[129].

Although we would not expect a People's Assembly thus formed to be integrated into the United Nations immediately, we might expect its legitimacy to grow over time, especially as it began to aggregate global public opinion and influence policy. The more that the deliberations of such an assembly became part of the global news cycle, then the greater the number of citizens who might participate in the network. Hence, the Assembly might become larger and more legitimate over time.

Two options come to mind regarding the inclusion of a People's Assembly (PA) into mechanisms of global governance. The first option is the intentional inclusion of the PA into the United Nations framework; i.e. a General Assembly resolution is proposed, supported, and passed that mandates that the PA become a permanent body within the UN. Although not inconceivable, it seems unlikely that the delegates to the General Assembly, or the members of the UNSC for that matter, could justify vetoing the inclusion of the PA. To do so, and assuming that the PA was large and representative enough to be legitimate, then such an action would pit nation-states directly against their own citizens. In other words, if delegates rejected the legitimacy of the PA, then they would in effect be rejecting citizens themselves as the source of all legitimacy. It is difficult to imagine how, in the Western world at least, elected and government officials could maintain this position over time. If our assumptions

[129] It is, of course, unclear what threshold of population would make such a network legitimate. If we are generally correct about the characteristics of pyramidal networks, however, then 5% might be an overly conservative estimation. Facebook users, for example, comprise more than 25% of the global population. What we might expect is for a small network to form initially – say 0.1-1% of the global population – which would then later expand dramatically as the People's Assembly began to accumulate legitimacy.

regarding obtrusiveness are correct, moreover, then rejection of the PA might increase participation in 'UN' networks rather than decreasing it.

What seems feasible, however, is a contestation over the legitimacy of component country networks within the PA. If our bespoke application were unavailable in China or Russia, for example, then it seems possible that the PA would be rejected as illegitimate because it was not fully representative; with Western countries perhaps using this objection to derail reform as a whole. It is unclear how delegates to the General Assembly might resolve this problem over time, but it is probably wise to follow Patomäki (2001) who argues that international inclusion is a better long-term strategy then exclusion[130]. In other words, even if authoritarian regimes submitted delegates who were not democratically and autonomously selected, it may still be useful to constitute a PA that might then address that very issue. Thus, although authoritative regimes may make the process difficult, they do not necessarily scuttle it.

If the first option is intentional inclusion, then the second option is intentional exclusion. In other words, if the General Assembly or some permanent members prevented the PA from becoming incorporated within the framework of the UN, then it might become possible to simply create the PA – as a formal body – outside of the UN framework. Under this scenario, then, the top-tier delegates of the PA might raise funds[131] in order to meet in permanent session somewhere in the world. Over time, and assuming that the assembly continued to be seen as legitimate, then it seems likely that it would become formally integrated into UN in due course. The contention here, then, is that the early rejection of the legitimacy of the PA would not necessarily prevent it from officially representing the positions of global citizens.

Given these options, then, our key claim is that transnational pyramidal networks could enable the formation of a People's Assembly, which might then gain formal legitimacy by being included into the UN framework. There seems to be three key options for the role of the PA, were it to be formally included. First, it could be entirely advisory and have no formal power. Second, it could exist alongside the General Assembly, and thus have authority "parallel to that of the present assembly", as some scholars suggest (Alger 2010: 75). In this way, the two assemblies would be like the two houses of parliament: The General Assembly like the House of Lords, and the PA like the house of commons (Tännsjö 2008: 96). Third, it could gradually become a World Parliament with directly elected

[130] In relation to the implementation of a Tobin tax, Patomaki considers whether or not authoritarian regimes should be entitled to a share of the resulting revenue. Weighing the options, he suggests that the possibility of moving towards more democratic governance by including such regimes outweighs the costs of exclusion.
[131] Assuming a cost of say $250 000 per delegate, expenses, and support staff per year and assuming 200 delegates, then it would cost $50 million per year for delegates to remain in permanent session; a relatively small sum.

members and formal legislative powers (Falk and Strauss 2001; Monbiot 2003; Falk 2014), essentially replacing the General Assembly as a democratic alternative.

Whichever option is chosen, it seems reasonable to expect that the introduction of a PA would increase the transparency and effectiveness of the General Assembly, which, according to Kennedy (2006: 274), is currently

> *"[f]orbidden (essentially) to discuss and decide upon security issues, emasculated in its socioeconomic remit by the distance of the Bretton Woods institutions and the intergovernmental organizations, limited by the amount of time it is in session, cramped by its plethora of committees, paperwork, and formal bureaucratic practices, and weighed down by the need to be representative of its 191 members…, this is neither an effective nor a happy principle of the UN"*

Given a PA that is representative more of citizens than of governments and whose deliberations were largely exempt from government interference, it seems possible that, as a result, the General Assembly might gradually become more empowered and proactive. As Falk (2014: 138) argues, a key obstacle to UN reform has been the difficulty of achieving consensus given the interests of major powers, on one hand, and the diverse priorities within and between regions on the other. Essentially the key obstacle is one of national interests trumping common interests, and major powers having undue influence over minor powers.

A People's Assembly, however, might go some way towards obviating national interest, especially in the event that it was able, as a *sui generis* form of representation, to highlight a series of interests – peace, sustainability, security, prosperity – that most citizens shared. Under such conditions, it might become possible to reform the General Assembly such that it could respond to the basic needs of citizens. Alternately, a PA might simply highlight the total incapacity of the General Assembly to properly represent the interests of citizens, thus facilitating more drastic reform. Either way, a PA may be a feasible means of reforming the General Assembly, whatever shape that reform eventually takes.

A perennial problem, when considering General Assembly reform, however, is the problem of a properly weighted system of voting. As Schwartzberg (2003: 87) notes, the "sixty-four least populous members – enough to block a two-thirds majority vote – constitute only 0.9 percent of the total population of all member nations". Hence, voting based on equal sovereignty gives undue weight to a handful of tiny island nations, while voting based on population gives undue weight to India and China who, together, comprise 35% of the world population.

As a solution to this problem, Schwartzberg (2003: 89) argues for establishing a voting system that "assigns equal weight to each of three fundamental and valid principles": population (democratic/demographic principle), contribution to the UN budget (economic/capacity-to-be-effective principle), and 'one state, one vote' (legal/sovereignty principle)[132]. The result would be an apportionment of voting power (an Entitlement Quotient or EQ) to each nation based on a combination of the three principles.

Reforming the General Assembly on the basis of EQ, as Schwartzberg argues, might help to legitimise it as a body with formal powers; i.e. such that it could make binding decisions rather than non-binding recommendations. To make this process as democratic as possible, Schwartzberg suggests that two guiding principles be used to legitimise any decision: 1) that the decision-makers hold a two thirds majority of the total EQ; and 2) that the decision-makers constitute two thirds of the total global population. These conditions have the advantage of preventing contention: no country or block of countries would be able to force a decision based purely on sovereignty, population or wealth. If these two conditions were met for any given decision, Schwartzberg says, then it "would have the character of international law and would therefore be applicable to all member nations" (92-3).

Such a reform would be unlikely, however, under current conditions. There is no immediate reason why the permanent members of the UNSC would voluntarily agree to such reforms; they would have little to gain and much to lose from empowering the General Assembly. Hence, again, the value of a People's Assembly in facilitating reform: with only minor additions to our bespoke application it would be possible to immediately implement Schwartzberg's system of weighted voting. A PA constituted on the basis of such a formula – or some similar agreed-upon formula – would thus set an immediate precedent, assuming it was proved to work appropriately, for implementing such a system in the General Assembly. Hence, by using the PA as a testbed, it might become possible to reform the vote-weighting system of the General Assembly and thus enhance the legitimacy of its decisions.

Overall, then, our argument is as such: 1) transnational pyramidal networks could facilitate the formation of a People's Assembly, independently of national oversight; 2) a PA of sufficient legitimacy would likely become integrated into the UN over time; 3) as a PA became integrated it could play an advisory role, have powers similar to the General Assembly, or form the basis for a World parliament with formal legislative powers; and 4) which ever route is eventually taken, a PA could help to

[132] In practice this means applying a formula, EQ (entitlement quotient) = (P + M + C) / 3, where P is the nation's population as a percentage of total global population, M is the unit share of total UN membership, and C is the monetary contribution towards the total budget. Under this formula, and using figures for the year 2000, Schwartzberg calculates that fifteen countries would have an EQ – a voting strength – in excess of 1%, and four countries – USA, China, Japan, India – would have EQs in excess of 4%.

empower the General Assembly by highlighting common interests and by setting a precedent for a more legitimate mechanism of collective decision-making. As Tännsjö (2008: xii) argues, a People's Assembly (instituted from the top down) will have no effect unless it gains strong support from a "global political movement committed to the cause of creating a democratic world order". In our formulation, this requirement might be met.

7.3.2 Security Council Reform

As we have mentioned, the UN Security Council and the veto were a "Faustian bargain" necessary for bringing the UN into being (Falk 2014: 56). As Boutris-Ghali (2001: 175) notes, when recalling the USA's unilateral veto against his taking a second term, the fact that a single nation can determine the course of the United Nations as a whole is a "rejection of democracy". Moreover, the fact that America could lobby for the instantiation of democracy within every state in the world, but then "reject it in the world's organisation of states", was a theme much discussed across the developing world at the time. The veto powers of the five permanent members of the Security Council is, then, a "timeless procedural obstacle" for any process of UN reform (Weiss 2003).

Although the number of non-permanent members on the council was expanded from six to ten in 1965, it should come as no surprise that current arrangement remains inherently unjust. Eastern Europe is substantially overrepresented, while Africa is heavily underrepresented (Gould and Rablen 2016). Moreover, evidence suggests that the USA tacitly buys the votes of non-permanent members, with such members receiving on average between $16 - $45 million more in foreign aid as a result of them rotating into a Security Council seat (Kuziemko and Werner 2006). Finally, Binder and Heupel (2015), in an analysis of evaluative statements made about the UNSC by member states in the UN General Assembly, find that it suffers from a "legitimacy deficit", with negative evaluations far outnumbering positive evaluations. Importantly, this deficit centres on procedural concerns; i.e. members do not believe that decision-making processes are fair. There is thus reasonable evidence to suggest that the UNSC should be reformed.

Reform proposals, however, are varied and somewhat inconsistent. As Gould and Rabens (2017) outline, the core themes of reform are: expanding the total number of non-permanent members; the addition of permanent members without veto rights; the granting of veto rights to rotating non-permanent members; weakening the power of the veto by requiring two permanent members to use their veto rather than one; redefining the composition of regions (and thus who is eligible for a rotating non-permanent seat); creating a new type of seat related specifically to regions (one for the EU, Arab League, etc); allowing non-permanent members to repeat terms; or increasing the length of

term limits. Although most nations would welcome the elimination of the veto entirely, this is not seen as a practical way forward politically[133].

Gould and Rabens (2017) use quantitative simulation methods to evaluate these reform proposals in terms of equity and efficiency. They find that weakening the power of the veto – requiring two rather than one permanent member to veto a decision – is the only proposal that "robustly dominated the status quo" in terms of equity and efficiency (145). Many proposals, moreover, decreased both these measures. Expanding membership in the council, for example, might increase equity but at the cost of efficiency; i.e. the capacity to make timeous decisions. Similarly, Hurd (2008) finds that the assumed link between expanded UNSC membership and additional legitimacy in decision-making is tenuous.

Regardless of which UNSC reforms are most appropriate, however, Gould and Rabens note that the constitutional power of permanent members to retain their powers seems "impregnable" (161). But, as Fassbender (2004) argues, if the world as a whole could agree on a way forward, then the permanent members would likely have no option but to "concede ground" (Gould and Raben 2017: 161).

Our key argument here, then, is that a democratised General Assembly – or, for that matter, an empowered and integrated People's Assembly – may have sufficient legitimacy to force reform of the Security Council. Given a legitimate and integrated PA, and given consensus that reform was required, it seems plausible that the permanent members would not be able to prevent reform indefinitely. Doing so, moreover, would risk further undermining the legitimacy of the council by pitting some permanent members against others (assuming that citizens in the UK, France or the USA looked favourably on reform). Given this state of affairs, it seems reasonable that non-consenting permanent members would eventually acquiesce to reform rather than risk immobilizing the entire UN process. Hence, sufficient pressure on the part of a PA and a reformed General Assembly may be sufficient to accelerate reform of the Security Council.

Rather than an outright demand for eliminating the veto, a demand for weakened veto power – a two rather than one veto-requirement – would be an important and practicable step towards more broad-based reform. A more coherent demand, moreover, might be to reform the council on the basis of EQ (Equity Quotients) as we have outlined above regarding the General Assembly. Reform of the General Assembly based on EQ would set an important precedent for the same reform within the council. To

[133] See, for example, Blum (2005) in his review of the recommendations of the UN High Level Panel on Threats, Challenges, and Change.

this end, Schwartzberg (2003: 100-102) suggests that Security Council representation and powers be based on certain thresholds of EQ.

In this formulation, any nation or bloc of nations with total EQ exceeding, say, 4% would be entitled to a Security Council seat. Such blocs would vote periodically to select a representative, encouraging meritocracy as each member would have an interest in electing a competent and highly visible representative in the hopes of increasing the stature of the bloc. Moreover, a bloc system based on thresholds of EQ would allow states to form and reform "the regions or blocs (not necessarily contiguous) from which they wish to be represented" (101); a system more appropriate than the current system of rolling non-permanent seats based on continental blocs. Schwartzberg identifies 4 countries and 14 regional blocs that would meet the requirement for a 4% EQ threshold, making for a UNSC with 19 seats.

This proposal has several characteristics that recommend it, especially if it were phased in gradually over ten or more years in order to compensate permanent members for the eventual loss of veto. First, the ability of blocs to form and reform would allow for the more flexible and equitable representation of member states. Second, the veto system might be reformulated such that thresholds of EQ and population would allow blocs of states to veto decisions, similar to the thresholds proposed for the General Assembly. Third, and perhaps most importantly, the system could be initially adopted by the People's Assembly, thus creating a "shadow Security Council"[134] and setting a precedent for formal UNSC reform in the future.

Although the proposed system does not immediately solve the "timeless" problem of the veto, it does suggest a pathway towards reform. China and the USA, for example, would gain significantly in a reformed General Assembly, as the voting power of their EQs would exceed dramatically their voting power under the current 'one state, one vote' system (Schwartzberg 2003: 105). Thus, under conditions where a *sui generis* People's Assembly were forcing reform in the General Assembly, the permanent members might become amenable to Security Council reform if the process were gradual and if they were assured of maintaining some adequate threshold of power under the new system.

The picture that emerges, then, is of a People's Assembly – in conjunction with interparliamentary institutions, global political parties, and SMU configurations – consistently applying pressure in order to gradually reform various UN bodies. To focus in on the core contention: reform is generally considered impossible due to the veto powers of permanent members. Although cogent, this

[134] The greater the size and legitimacy of the People's Assembly, the more weight the deliberations of this shadow security council would likely carry. At a certain threshold of legitimacy, we would contend, it would then become increasingly difficult for permanent members to obstruct substantial reform.

diagnosis is based on the state as the key unit of analysis. Transnational pyramidal networks, however, could shift the unit of analysis from the state to the global citizen. Under these circumstances, possibilities open up for the reform of both the General Assembly and the Security Council. As Schwartzberg (2003: 99) argues, major reform of the Security Council has "widespread global support" and could, in principle, be achieved "with or without concomitant reform in the General Assembly". Although true, it seems more likely that a *sui generis* People's Assembly could force reform of the General Assembly, and a reformed General Assembly could force reform of the Security Council.

7.3.3 Funding Reform

Even if reform of the General Assembly and Security Council were feasible, the issue of funding remains. As Kennedy (2006: 206) notes, despite the aspirational content of the UN charter, there is a "constant affirmation" that states and governments are the only important actors because they "pay the bills". This is nowhere so clear as in the case of the United States, which contributes disproportionately to the UN budget but consistently withholds payments in order to further its geopolitical ambitions.

Hence, the United Nations is often in a state of financial crisis as a result of members not paying their dues, the United States in particular (Mendez 1997; Bond 2003; Hüfner 2017). The voluntary funding system – by which powerful states can delay their contributions or attach conditionalities – is a means by which collective decision-making is replaced by unilateralism and bilateralism on the part of powerful actors (Graham 2012, 2013). There is also a trend towards "philanthrolateralism" where the influence of corporations and philanthropic organisations runs the risk of undermining democratic global governance by "turning UN agencies, funds and programmes into contractors for bilateral or public-private projects" (Seitz and Martens 2017: 48). Overall, then, the resourcing of international organizations speaks directly to the way that they are administrated, the strategic orientation of their employees and staffers, their capacity for strategic action, and their interconnectedness with other organisations within the economic and civil society spheres (Goetz and Patz 2017).

Thus, even if a *sui generis* People's Assembly were to be created, and even if it successfully applied pressure for reform, the UN could still be "brought into crisis" by major contributors failing to pay their dues (Kennedy 2006: 209). As Imber (1997, cited in Patomäki 2001: 206) notes, because dominant states pay the bills, their increased power is justified. Hence, the prevailing argument is that

"efficiency and democracy are incompatible, and that efficiency should be preferred to democracy"[135] (ibid).

Davidson (2000) makes a distinction between architectural solutions and plumbing solutions; the former speaks to changing the superstructure of the system while the latter speaks to tinkering with the system as it is. Our key argument here is that transnational pyramidal networks may be able to provide an architectural solution to the problem of UN funding. The implementation of a Tobin tax, where part of the revenue would go directly to the UN, would help to prevent powerful states from influencing the policy and effectiveness of UN bodies. As Mendez (1997: 297) notes, what the UN needs is "no less than a substantial and independent source of funding, to supplement its income from government contributions".

As Patomäki (2001: 205) argues, the UN is well positioned to be the "governor" of a Tobin Tax Organisation, provided that it first undergoes some threshold of democratic reform. Based on our projected revenues from a Tobin tax – as outlined in the following chapter – two dollars from every global citizen (2% of the total tax receipts) would provide some 14 billion USD; roughly equal to the current annual budget of the UN (UN 2017a, 2017b). An independent source of funding, moreover, would enhance the bargaining position of IPIs and SMU configurations, freeing the UN from the control and influence of dominant states and strengthening the case for reform.

There is, of course, a chicken-and-egg problem here. To wit, the implementation of a Tobin tax could be blocked by a permanent member to the Security Council, and reform of the Security Council is premised, in part, on the implementation of a Tobin tax. In other words, what could induce UNSC permanent members to implement a system of independent financing that would eventually undermine their power of veto?

The answer is found in the same general argument as above: given transnational pyramidal networks large enough to make a legitimate demand for the implementation of a Tobin tax, the permanent members would be hard-pressed, especially under concerted pressure over time, to justify rejecting such a request. Thus, the implementation of a Tobin tax is an alternate, as well as complementary, route to the reform of the United Nations. In fact, a People's Assembly concerned primarily with implementing a fee-and-dividend Tobin tax might have the advantage of broad consensus and a unitary focus, assuming citizens supported such a tax. In other words, a PA concerned with implementing reform or representing the myriad concerns of global citizens might find it difficult to

[135] It is noteworthy that, then Minister of Finance for Greece, Yanis Varoufakis, expressed a similar sentiment with regards to the European Union.

achieve consensus and direction, but a PA concerned primarily with a single social demand – the Tobin tax – might prove to be an unstoppable force.

Funding the UN by means of the Tobin tax would not necessarily conflict with fee-and-dividend participatory budgeting, which we claim is a key means of driving participation in pyramidal networks[136]. If citizens were to allocate their dividends to various local, national or global projects, then one such project could be the United Nations; i.e. the UN and its various bodies could be funded by means of "civic crowdfunding"[137], albeit crowdfunding based on a Tobin tax dividend. This would have several benefits: 1) it would link directly the interests of global citizens with the operations of UN, helping to drive participation in transnational networks related to global governance[138]; 2) local grassroots organisations might become more empowered to identify problems and potential solutions[139], facilitating greater subsidiarity; and 3) it would signal to governments directly the preferences of citizens, thus making it more difficult for nation-states to withhold funding or interfere in policy. We expand further on the idea of civic crowdfunding, or participatory budgeting based on a Tobin tax dividend, in the following chapter.

Apart from architectural solutions like a Tobin tax, there are a variety of plumbing solutions available that would help to reform funding (Mendez 1997): 1) charging interest on late dues; 2) changing from an annual to a quarterly payment; 3) reducing the size of US contributions and asking rich countries to contribute more; 4) naming and shaming the worst contributing members/members who are constantly in arrears; and 5) preventing members in arrears from voting. Given a People's Assembly and an empowered General Assembly, it seems feasible that these kinds of minor changes could be

[136] In the following chapter we suggest that every citizen would be able to allocate $100, in any series of amounts, to any set of projects. We argue that this would be an important means of driving participation and deliberation in pyramidal networks.

[137] According to (Belleflamme, Lambert and Schwienbacher 2014: 588), crowdfunding "involves an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes". Davies (2014: 17) defines *civic* crowdfunding as projects involving "either directly or indirectly, the use of government funds, assets or sponsorship, which may include the development of public assets". As we outline in the following chapter, crowdfunding in a key aspect of the sharing economy. Civic crowdfunding, however, as the name suggests, speaks directly to social projects or the provision of public goods, and thus excludes the possibility of profit or material returns for donors. The success of civic crowdsourcing is directly related to the strength of the community from which funds are drawn and in which the project is located (Stiver et al 2015; Davies 2015). A democratised UN and a democratised public sphere might enable communities to organise across geographical space, and thus enable the civic crowdfunding of UN operations.

[138] People are often motivated to participate in crowdfunding not just for material ends, but because of the social interactions they bring and the "feelings of connectedness to a community with similar interests and ideas" (Gerber, Hui and Kuo 2012: 1).

[139] McKeon (2009: 177) notes that big INGOs (International Non-Governmental Organisations) often develop positions, on behalf of 'the poor', without "systematic political engagement" with local organisations on the ground and thus may "not even reflect the positions for which these organizations themselves are lobbying".

implemented. This would help to ensure that, at the very least, the UN was no longer in constant financial crisis.

Thus, overall, our main argument is that new forms of global representation – a People's Assembly, IPIs, global political parties, SMU configurations – might allow citizens to fund the UN independently of governments. An architectural solution would be the implementation of a Tobin tax from which the UN would either be automatically funded or funded via civic crowdfunding. The latter possibility would also have several benefits related to the linking of citizens with UN bodies and grassroots projects. Besides these architectural solutions, a People's Assembly or an empowered General Assembly might be able to institute a raft of small changes that would ensure that the UN no longer had to endure chronic financial instability. These possibilities, in turn, would make broader UN reform more feasible.

7.3.4 IFI Reform

By IFIs we refer to the major international financial institutions: The World Bank, the International Monetary Fund (IMF), and the World Trade Organisation (WTO). As Patomäki (2001: 206) notes, despite its problems, the United Nations 'one-country, one-vote system' is far more democratic than the 'one-dollar, one vote' system of the IFIs[140]. The central, and unsurprising, claim is that IFIs are generally used by the USA to serve its foreign policy interests. The World Bank disperses funds more quickly for countries aligned geopolitically with the US (Kersting and Kilby 2016), and the IMF attaches fewer conditions to loans for countries aligned with the G7 (Dreher and Jensen 2007; see also Stone 2008). Hence, IFI resources are often "funnelled" to politically important countries, especially ones which are rotating into UN Security Council seats (Dreher, Sturm and Vreeland 2009a, 2009b)[141].

Although IFI reform is important, our general argument is that such reform can be subsumed under our arguments for UN reform. In other words, if the UN can be reformed, then the IFIs can also be reformed. Moreover, many of the criticisms levelled against the IFIs would be less relevant under conditions of a democratised economy. Monetary reform, for example, speaks to the possibility of funding development without the need for debt. Just two years of Tobin tax revenue, to take another example, would provide funds in excess of the total resources of the IMF and World Bank combined, roughly a trillion dollars (Reuters 2010). Thus, while IFI reform is crucial, we would submit that it would

[140] The WTO actually requires unanimity in its decision-making, but powerful states exercise disproportionate agenda setting power.

[141] Perkins (2004) draws our attention to a darker possibility, that IFIs are used directly by "economic hit men" in the employ of the USA in order to burden third world countries with unpayable debts that benefit only elites. Whether one finds these assertions to be generally accurate or inaccurate (see Snyder 2005; MacKenzie 2006; Brumback 2006), they do seem plausible given the history of predatory interventionism on the part of the United States (Parenti 1995).

follow from UN reform, and that the success of the latter would ensure the success of the former. Thus, in the interests of parsimony, we do not examine in detail the reform of IFIs here.

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In this section, our core argument is that new forms of global governance open up new possibilities for reforming the United Nations. A *sui generis* People's Assembly might resolve the chicken-and-egg problem of reform by empowering or transforming the General Assembly. If permanent members used their vetoes to obstruct the PA, those members would risk rejecting their citizens as the source of their own legitimacy. Over time, such a state of affairs would likely prove untenable.

An independent PA or an empowered General Assembly could implement new forms of weighted-decision-making, like an Entitlement Quotient based on the three principles of national sovereignty, direct representation, and wealth/contribution to the UN system. Such a system might create a precedent for reform of the United Nations Security Council, especially if an independent PA created a "shadow Security Council" based on the EQ system and such a system gained legitimacy over time. Given a threshold of legitimacy on the part of a PA or General Assembly, however, it seems unlikely that the permanent members of the security council could prevent reform indefinitely.

In conjunction with General Assembly reform, or as an alternative to it, an independent and legitimate PA could make a social demand for the implementation of a Tobin tax. Part of the proceeds could go directly to the UN, or citizens could use their dividends to fund the UN by means of civic crowdfunding. Either way, establishing an independent source of funding would render the UN independent from the influence of powerful donor states and help to accelerate reforms in the General Assembly and the Security Council.

Although we have placed significant emphasis on a People's Assembly, we should assume a PA to form only part of a sequence of networks that enabled citizens to have a voice in global affairs. Interparliamentary Institutions, for example, could play a crucial role in legitimising social demands for UN reform, and institutions like the Interparliamentary Union could form the basis for a future world parliament. The more that individual parliamentarians were elected via pyramidal democracy – or at least connected to their constituents via pyramidal networks – the more that local citizens might become linked to structures of global governance. SMU configurations and transnational political parties could play a similar role – provided they agreed broadly on some set of demands or reforms; i.e. they had a joint manifesto.

The picture that emerges, then, is of transnational pyramidal networks facilitating new forms of global representation which, in turn, make possible the reform of the structure of global governance, the

United Nations in particular. Such reforms thus comprise the second component in what we call a citizen-based schema of global governance. As we have suggested, the replacement of the state with the citizen as the primary unit of analysis is at the core of such a schema.

As Schwartzberg (2003: 109) suggests, “Today's leaders, working together with an engaged, informed, and electronically connected global civil society, now have an opportunity to fundamentally reshape the course of history”. Or, according to McKeon (2009: 174), the “new” will come not through “global unilateral dictate” but from “a networked cumulative dynamic of opening new political spaces and devising new ways of occupying them”. It will not come if “multiple engagements at all levels do not take place” (ibid). Transnational pyramidal networks may be the means by which to facilitate these multiple engagements and thus reshape the course of history.

Be this as it may, however, reforming the General Assembly and Security Council would not immediately overcome one of its core weaknesses: its “almost total reliance upon U.S. military power” (Weiss 2003: 156). Although transnational pyramidal networks may facilitate UN and IFI reform – thus creating credible respondents to global-level demands for a democratised economy – they do not immediately solve the problem of hard power and war. What good would a democratised economy be in a world at war?

7.4 Global Peace

Tännsjö (2008) argues that the primary argument in support of a world government is the realisation of peace; i.e. without a global state, wars are impossible to prevent. In this section we suggest how peace might be attained by means of transnational pyramidal networks.

Six possibilities exist for how national and transnational pyramidal networks might enable citizens to limit the capacity of states to use force. First, pyramidal networks might enable the consolidation of anti-war sentiment. Given a certain threshold of size and legitimacy – and considering the integration of such networks into the 24-hour news cycle – it seems feasible that large transnational pyramidal networks could make it more difficult for states to go to war. Second, given the consolidation of anti-war sentiment, and given that a majority of citizens were opposed to military conflict, then it may become possible to democratise war powers; i.e. require national referenda in order for states to declare war or deploy military force. Third, transnational pyramidal networks might enable citizens to limit the international trade in arms by gradually disrupting the ‘revolving door’ between government, the military, and the arms industry. Fourth, pyramidal networks might make it possible to unionise military personnel, thus allowing them to contribute towards debates over military intervention,

peace-keeping and peacebuilding. Fifth, and given the preceding possibilities, transnational pyramidal networks might enable the regionalisation and then the internationalisation of security. This might enable the creation either of a standing UN army comprising seconded national troops, or an independently financed UN army or rapid response force. Sixth, given all the preceding possibilities, transnational pyramidal networks might enable citizens to directly authorize military interventions based on the Responsibility to Protect. Moreover, the preceding possibilities, in combination with a transition towards a democratised economy, might enable post-conflict reconstruction that was both inclusive and sufficiently-resourced.

Although we should not underestimate the power of entrenched interests, nor expect transnational pyramidal networks to immediately prevent war, these possibilities do suggest a means by which citizens might restrict the capacity of states to go to war or deploy force. Hence, these possibilities comprise the third component in our citizen-based schema of global governance: the possibility of global peace.

7.4.1 Consolidation of Anti-War Sentiment

In February 2003, between 6 and 10 million citizens across the world came out in protest against the impending invasion of Iraq in the "largest protest event in human history" (BBC 2003; Walgrave and Dieter 2010). More than a decade later, half of US citizens and soldiers say the decision to go to war was ill-conceived and that the war was ultimately unsuccessful (Pew Research 2011; Drake 2014; Oliphant 2018). Moreover, average support for war in general has declined on the part of the young and the highly-educated – two segments of the population that traditionally have either the free time or the political resources to protest or to influence policy (Burris 2018). Thus, one of the "biggest legacies" of the Iraq war may be that public attitudes about the use of force now impose "serious constraints" on the ability of the United States to go to war (Drezner 2013).

Our contention here is that, in the future, pyramidal networks might facilitate a far larger and more coherent projection of anti-war sentiment. To what extent would the invasion of Iraq have been possible, for example, if the 6 or 10 million protestors had subsequently organised themselves by means of a single transnational pyramidal network? How quickly would this network have grown once its activities became integrated into the 24-hour news cycle? How many members would the network have needed in order to render pre-emptive war politically infeasible for the USA and the UK? Twenty million? Fifty million? One hundred million?

Hence, if our general assumptions about the efficacy of pyramidal networks are correct, then they might enable citizens to mobilise in such a way as to restrict the ability of states to wage war. As Hahn

(1970) notes, in an evaluation of support for the Vietnam war, attitudes about war – and presuppositions about the kinds of citizens who support or oppose war – may stem from the simple fact that the public, and "especially working-class voters", have seldom been given an opportunity to exert a "direct influence" on foreign policy decisions (1197). Pyramidal networks might allow citizens to exert such influence directly.

If this is the case, then anti-war sentiment might form the basis for transnational networks directly opposed to the use of military force. If such networks were to become large enough to be sufficiently legitimate then they might, in turn, limit the ability of states to deploy military force. This possibility forms the bedrock of our argument as to how transnational pyramidal networks might aid in reducing the frequency of military conflict.

7.4.2 The Democratisation of War Powers

The second possibility of restricting the use of force relates to the democratisation of war powers; i.e. requiring a national referendum in order for a country to go to war. This is not a new idea: Kant in *Towards Perpetual Peace* notes that peace would be far more likely if citizens decided directly whether or not to declare war[142]. During and after the first world war, moreover, American politics saw the introduction of many "war referendum proposals" in Congress, which were aimed at promoting peace and "subjecting war powers to a closer popular scrutiny" (Suksi 1993: 65). The only proposal to be put to a congressional vote was the Ludlow amendment which required a national referendum in order to legitimise any declaration of war, except in cases where the United States had been attacked first. The Roosevelt Administration, however, defeated Ludlow's "project for direct democracy"[143] and thus validated "Constitutional restraint" on the ability of citizens to decide issues of war and peace (Scherr 2010: 492).

Given large SMU configurations, interparliamentary institutions, global political parties, and a People's Assembly, however, it might become possible to gradually introduce legislation that would restrict the ability of states to declare war. In cases where a majority of citizens clearly supported such legislation, it might be difficult for the government in question to reject such a demand. Furthermore, the more countries that adopted such legislation, the greater the pressure would be on non-conforming states

[142] He argues: "The reason for [republicanism] is as follows: if (as must be the case in such a constitution) the agreement of the citizens is required to decide whether or not one ought to wage war, then nothing is more natural than that they would consider very carefully whether to enter into such a terrible game, since they would resolve to bring the hardships of war upon themselves" (Kant 2006: 75).
[143] As Suksi (1993: 67) notes, the bill failed probably due to the fact that it represented "too long a step" from representative to direct democracy and would thus have set a precedent for a shift from national sovereignty to popular sovereignty; i.e. that power and legitimacy come directly from the people.

to do the same[144]. If it were possible to restrict war powers in this way, then it might also be possible to enforce nuclear disarmament or restrict the ability of states to engage in drone and low intensity warfare[145]. Over time, then, we might see a system emerge where the capacity to deploy force rested with citizens and not states. This might amount, over time, to a precedent for a "legal foreign policy", a policy that was "tied to open and accountable procedures" (Held 1995: 198; see also Falk 2014: 128).

7.4.3 Limitations on the International Arms Trade

The third possibility – not unrelated to the first two – is the potential for citizens to force states to limit their trade in arms. The international arms trade is now worth $100 billion a year (SIPRI 2018), and one of the "most marked aspects" of the trade is the dominance of just six suppliers (Holtom and Bromley 2010: 10): the USA, Russia, Germany, France, the United Kingdom, and China. The top arms exporters are, therefore, also the permanent members of the Security Council. In fact, as of 2016, nine of the world's top ten arms exporting countries sit on the Security Council (Rowlands 2016).

Perkins and Neumeyer (2010) thus identify an "organised hypocrisy" on the part of major Western arms supplying countries in the sense that, despite espousing a rhetoric of human rights, they supply arms relatively indiscriminately, so long as doing so in in their economic or security interests (see also Erickson 2013). In 2014 an international Arms Trade Treaty (ATT) was put into place – designed to prevent sales to authoritarian regimes – but the treaty has been ineffective, failing to prevent the USA and the UK from selling billions of dollars of weaponry to Saudi Arabia for use in Yemen (Knight 2017).

A core impediment to regulating the arms industry is the role it plays in domestic political economies (Feinstein 2013; Erickson 2013). As Eisenhower warned, the military-industrial complex – or, as he considered calling it, the military-industrial-congressional complex (Ledbetter 2011) – creates a perverse incentive for the proliferation of weapons and the corrosion of democracy. Hence, there is a continuous 'revolving door' whereby people move between government, the military, and the arms industry (Feinstein 2013: xxv).

The fact that powerful states, the US in particular, view conventional arms sales as a "special tool to be used in the service of its foreign policy goals" (Erickson 2013: 449), and the entrenchment of a

[144] One possible outcome of such a process is the creation of a democratised war-mongering state, where its citizens actually chose to wage pre-emptive war. This seems unlikely however.

[145] Low intensity warfare is where a state deploys force within or outside its borders, and often against non-state groups, but without the intensity of conventional war. The border wars in Apartheid South Africa (Metz 1987) or the Israeli military's internal and external engagements (Maoz 2007) are good examples of low intensity warfare. We should acknowledge a potential issue here: although citizens are unlikely to voluntary declare war for no reason, they may be more inclined to sanction low intensity warfare. Thus, a set of more democratised war powers might facilitate rather than prevent crises like ethnic cleansing or the state oppression of minority groups.

realist "dysfunctional militarism" perspective on the part of publics in major states (Falk 2014: 128-9), obfuscates scrutiny and reform of the international arms trade. Under these conditions, the arms trade "corrodes our democracies, weakens already fragile states and often undermines the very national security it purports to strengthen" (Feinstein 2013: xxii). In short, the fact that "we live in a dangerous world" (Bush 2006: 1503) – a self-fulfilling prophecy when the most powerful nations are flooding the world with weapons – facilitates a cycle of global violence.

Transnational pyramidal networks, however, may aid in breaking this cycle. First, any transition towards a more democratised global economy[146] would help to undercut the rationale for arms production; on the part of citizens who depend on arms production for their livelihoods, and on the part of regimes who maintain power by dint of their citizens' poverty. Second, the more entrenched that pyramidal democracy became, the less beholden to the military-industrial complex elected politicians might become. Third, the more organised civil society becomes – by means of IPIs, global political parties, SMU configurations[147], and a People's Assembly – the more difficult it would become for powerful states to maintain an "organised hypocrisy" (Perkins and Neumeyer 2010) when it came to the relation between arms exports, human rights, and endemic conflict.

Thus, although we should not underestimate the powerful vested interests connected with the international arms trade, nor expect transformative results overnight, transnational pyramidal networks might reduce, over time, the capacity of states to unilaterally flood the world with weapons. As Feinstein (2013: 531) notes, the reality is that "there will be no change in the way in which the arms trade operates unless the biggest producer and consumer of weapons, the USA, is willing to change" (Feinstein 2013: 531). Both domestic and transnational pyramidal networks might enable such change in due course.

[146] The implementation of a Tobin tax would also set a precedent for implementing a tax on the arms trade which, although not likely to reduce the volume of the trade (Brzoska 2004), would enable a more precise measure of the trade itself, a measure which is consistently obfuscated by states themselves. This would help to inform "states and civil society at large [as to] how [arms-exporting] states are interpreting the criteria used to determine whether to permit or deny an export" (Holtom and Bromley 2010: 14). Furthermore, the $5 billion or so generated from such a tax would go some way to funding global public goods (Brzoska 2004), like the UN itself, or organisations concerned with limiting the international trade in arms.

[147] Various prominent charities and NGOs support an effective global arms trade treaty (Oxfam 2018; Amnesty 2018; CAAT 2018). Pyramidal networks may provide a means for such organisations to rapidly increase support for an effective treaty. Moreover, the arms industry benefits from both direct and indirect subsidies by governments, totalling some $6 billion on the part of the USA in 2002 (Brzoska 2004). SMU configurations, if nothing else, could pressure governments to eliminate such subsidies.

7.4.4 Unionisation of Military Personnel

The fourth possibility is the creation of unionised or democratised militaries. The idea of a 'democratic army', as George Orwell (1939) pointed out, however, directly contradicts the strict hierarchy of the military chain of command, rendering the concept a possible contradiction in terms. On the face of it, however, if soldiers organised themselves via pyramidal networks then they would become *de facto* unionised. This raises at least two problems (Leigh and Born 2008). First, representation has implications for military discipline; i.e. union representatives might become sources of authority that conflict with the chain of command. Second, a networked military may become vulnerable to the manipulations of foreign states. As Leigh and Born note, these problems are generally avoided, within EU countries, by restricting membership of unions only to serving members, by providing other avenues of representation (military ombudsman), and/or by making strike action by soldiers illegal.

While pyramidal democracy does not necessarily solve these issues, it does bring the question of the representative rights of soldiers to the forefront. To wit, to what extent should soldiers – who bear the burden of war – have a say in their own deployment? The broad-based adoption of pyramidal networks in the civil sphere may, therefore, reveal several constitutional cracks with regards to the adoption of such networks in the military sphere: Could states ban military personnel from using a bespoke application that enabled pyramidal networks? What if the users of such networks were anonymous? Would the existence of anonymous military-related networks force states to surveil and monitor their own military personnel? To what extent would the families of military personnel comprise networks that were effective proxies for serving members?

The relevance of these questions stems from the assumption that soldiers could or should have a say about whether or not to go to war – a question that has been relatively irrelevant throughout history because it has not been feasible to aggregate their preferences at low or zero cost. From a common-sense perspective, and seeing that soldiers bear the burden of war, one might argue that they should have a clear avenue by which to voice an opinion, even if that opinion was a general deferment to the judgement of elected officials. The capacity to express an opinion, however – especially when engaging directly with civil society by means of pyramidal networks – may provide a subtle means by which to limit the use of force by states. Our contention, therefore, is that pyramidal networks deployed in militaries might help to limit the ability of states to engage in military conflict, especially where the case for war was weak.

Where restrictions on unionisation were lax or non-existent – Sweden and the Netherlands, for example – pyramidal networks might amplify the voices of military personnel. In countries where legal

restrictions are in place[148], however, the adoption in civil society of pyramidal networks, as we have suggested, might open the door to more democratic representation, especially where constitutional cracks became apparent. What is particularly interesting about this possibility is the dilemma it creates: if laws were uphold that prevented military unionisation then a precedent is set for enhancing the voice of citizens in general.

In other words, if militaries rejected the idea of becoming agents unto themselves – which seems likely – and rather deferred their rights to elected representatives, then the legitimacy of elected representatives and their powers to go to war would take centre stage. Thus, the fact that armies *could* become democratised, but chose not to, might create a precedent for citizens to take seriously the responsibility of undertaking war. Hence, the possibility of military unionisation by means of pyramidal networks might strengthen the case for subordinating the control of the military to citizens themselves; i.e. legislating that referenda be required in order for a state to deploy pre-emptive force. This might go some way towards preventing military conflagration.

7.4.5 A United Nations Standing Army

The fifth possibility – becoming more feasible in the case of the full or partial realisation of the aforementioned possibilities – is for citizens to make a social demand for the collectivisation of security. We are speaking here of the creation of a United Nations standing army, formed either independently by the recruitment of volunteers or formed by the secondment of troops from UN member states.

In the decade after the Cold War ended, United Nations peacekeeping operations expanded several-fold in response to crises in Haiti, Yugoslavia, and Rwanda. In order to respond effectively to these crises, Boutris Boutris-Ghali, then UN secretary-general, argued convincingly for the creation of a UN standing army (Boutris-Ghali 1992). At the time scholars noted two barriers that rendered a standing UN army infeasible (Morrison 1994; Telhami 1995): 1) from a realist perspective, states would only support military intervention when it was in their national interest, thus making the idea of a standing army politically infeasible; and 2) a chronic lack of funding meant that the UN would be unable to pay for its own military force. In general, these obstacles do not seem to have changed much within the last two decades.

[148] In the UK, for example, troops are forbidden from belonging to an "association that has political activities" (Keating 2006). American law, similarly, makes it illegal for any member of the armed forces to join or maintain membership in a "military labor organization" (Legal Information Institute 2018). Moreover, it seems unlikely that authoritarian regimes would be thrilled by the idea of collective representation in their militaries.

Transnational pyramidal networks, however, may aid in overcoming these obstacles. First, unionised militaries in conjunction with pyramidal networks in the civil society and governmental sphere may create opportunities to integrate militaries at the regional level. Citizens of some countries in Europe – Germany in particular – for example, look favourably on the idea of disbanding or ceding their militaries to the UN in exchange for guarantees on their borders and security (Tännsjö 2008: 100). One pathway towards a UN standing army, therefore, might be the gradual regionalization of security by means of nations seconding troops to regional and then to international bodies. The political feasibility of such a transition might be enhanced by the capacity of citizens, soldiers and elected officials to deliberate on the desirability of collectivised security agreements.

In other words, new forms of global representation, in combination with the aforementioned possibilities of restricting the use of force, may facilitate a transition towards regional security and, eventually, a UN standing army based on the secondment of national troops. This possibility is ultimately dependent on the realisation of a citizen-based schema of global governance; i.e. if the citizen replaces the state as the arbiter of the use of force and given that appeals to national military autonomy were sufficiently overcome, then the gradual international collectivisation of security might become feasible.

A related, and not mutually exclusive possibility also exists. Instead of nations seconding troops to a UN standing army, an alternate option would be for the UN to directly recruit volunteers and/or professional soldiers. Nobel laureate, Lawrence Klein calculates that a standing army of one million soldiers would cost approximately $50 billion[149] per annum (Klein and Marwah 1996; Klein 2006). Klein also draws our attention to a proposal for a much smaller "rapid response" force of some 15 000 troops, which could be deployed immediately prior to the outbreak of conflict and which would be "backed up by larger forces remaining under national control" (Kaysen and Rathkens 2003: 92). Such a force would cost some $1.5 billion and allow the UN to rapidly respond to security crises without the need to go "cap in hand" to member states in order to ask them to contribute troops (Kennedy 2006: 256). As with all other aspects of a citizen-based schema of global governance, the implementation of a Tobin tax might make this possibility increasingly feasible.

[149] This cost estimate was made by Klein in 1996. Assuming the estimate is reasonable, this would represent some $7 per global citizen, or 7% of total Tobin tax receipts (not accounting for inflation). However, as suggested in the Volcker-Ogata report (Mendez 1997: 296), countries should consider funding peacekeeping operations from military budgets because peace keeping is an investment in security. Given this line of reasoning, funding a standing army from military budgets would make sense – provided that national interest could be set aside under conditions of transnational pyramidal democracy.

7.4.6 A Citizen-based Legitimisation of the Responsibility to Protect

The sixth and final possibility – and, again, one made more feasible by the gradual realisation of the preceding possibilities – is for citizens to decide directly where military intervention was and was not justified and appropriate. We are speaking specifically here of the Responsibility to Protect (R2P, see UN 2005). The R2P is built on three pillars: 1) The responsibility of states to prevent genocide, war crimes, ethnic cleansing and crimes against humanity; 2) International assistance and capacity-building to enable states to fulfil their obligations to prevent the aforementioned crimes; and 3) The timely and decisive response of third-party states to intervene when states fail in these obligations. A core idea in the R2P is, thus, the linking of a state's sovereignty to certain responsibilities to protect the citizens that comprise that state[150]. The R2P has now emerged as an accepted international norm (Bellamy 2015); i.e. states no longer argue about the legitimacy of the norm itself, but rather on how best to implement it.

Our contention here is that transnational pyramidal networks might contribute towards a citizen-based implementation of the R2P, in at least two ways. First, by enabling the five deliberative "capacities" identified in the second major UN R2P document (UN 2009) that would help to prevent crimes relating to the R2P. Second, by enabling citizens to deliberate over the legitimate scope of military intervention, as well as the desirability of UN peacemaking, peace-keeping and peace-building operations

The first possibility relates to the pre-conflict building of dispute-resolution capacities. The second founding R2P document (UN 2009: 20-21) identifies five capacities that would be important in order for societies to avoid the kinds of crisis that would necessitate R2P intervention. These are: 1) Conflict-sensitive development analysis; 2) Indigenous mediation capacity; 3) Consensus and dialogue; 4) Local dispute resolution capacity; and 5) Capacity to replicate capacity. The overall intention of these capacities relates, therefore, to the ability of governments, citizens and institutions to identify a broad range of problems within a troubled state and thus mediate disputes through dialogue and consensus.

[150] Averre and Davies (2015) provide a coherent overview of the complex relation between R2P, Russian foreign policy and the Syrian conflict. Russia interprets the R2P in terms of 'Pillar 2' of the founding document rather than 'Pillar 3'; i.e. that helping to ensure the sovereignty of a state is the best way to protect the security of its citizens, rather than on military interventions that may remove 'authoritarian' regimes but at the cost of destroying wholesale the administrative apparatus of government. The overall picture that arises is inherently complex and we cannot claim to try and resolve those complexities here. However, a citizen-based schema of global governance may enable global civil society to interpret sovereignty in terms of the extent to which states are representative of their citizens. This may help in resolving the complex disputes that arise out of the implementation of R2P.

In other words, if mechanisms existed to mediate disputes before they resulted in conflict, then third-party intervention would be required less frequently.

Pyramidal networks and democratic mechanisms, if broadly adopted in a given society, may then enable these capacities. If deliberation, dialogue, and consensus could be facilitated by means of such networks, then tensions might be identified and resolved prior to conflict breaking out. More specifically, a citizen-based schema of global governance – especially one where peace was prioritised – might create new capacities for the standardisation of conflict-resolution procedures based on deliberative theory and pyramidal networks. Although we would not expect such capacities to be developed quickly, devolving some authority for R2P to citizen themselves might help to speed the development and adoption of such processes. A transition towards a more democratised economy – especially where per-capita resources based on a Tobin tax dividend became available – might help, moreover, to fund the development of these capacities and to avoid disputes over scarce resources. A transition towards greater social justice by means of a democratised global economy, therefore, might enable the development of the five R2P capacities and thus help to reduce the frequency of conflict.

Where conflict did arise, however, and where the responsibility to protect became apparent, a schema of citizen-based global governance might go some way towards legitimising military intervention. What we are speaking of here, then, is a transition towards legitimising R2P interventions on the basis of citizens and not states. The legitimacy and scope of intervention might then result from the various deliberations of IPIs, SMU configurations, global political parties, and a People's Assembly. Such deliberations might then engender what might be called a non-partisan military intervention; i.e. intervention based on citizen-centred deliberative majority consensus[151]. While we would not expect this consensus to immediately replace the capacity of states to deploy unilateral force, it might, over time, create new norms that linked the R2P directly to global citizen consensus.

For such consensus to mean anything, or for this interpretation of R2P implementation to be effective, would require an unprecedented commitment to peacebuilding and post-conflict reconstruction. This would mean, essentially, that for every, say, 100 000 troops deployed, an equal number of doctors, teachers, engineers and general support staff would follow[152]. The resources derived from a Tobin tax

[151] We might immediately recognise the fact that, just because consensus was citizen-based, it would not necessarily mean that it was justified or rational. Although the possibility exists that citizens might 'greenlight' military intervention without sufficient justification, it seems unlikely they would do so consistently or on an irrational basis. Be this as it may, a potentially unresolved problem is the possibility of citizen-sanctioned military interventions that iteratively destabilised the global order.

[152] As Kennedy (2006: 262) notes, we need to give "much more attention" to the "dynamics of the 'transition' or 'recovery' phase" of peacekeeping operations. To cite an example from a contemporary television series, a

– allocated by means of participatory budgeting – could go some way towards meeting these obligations. Global civil society – organised by means of pyramidal networks and evincing a genuine commitment to reconstruction efforts – may facilitate, moreover, the creation of trust between local civilians and transitional administrations; a primary requirement for successful post-conflict reconstruction (Chesterman 2003: 11). What we are suggesting here, then, is the possibility of global civil society playing a core role in post-conflict reconstruction, both independently and by means of pre-existing state-based strategies.

If this kind of citizen-based legitimation and peacebuilding were to become possible, then it might be successfully linked to the capacity of states to supply non-military support for post-conflict reconstruction. In other words, while only a few powerful states have the capacity to project modern military force beyond their borders – i.e. contribute substantially and meaningfully to R2P military intervention – the rest of the world might "reasonably take on rebuilding and training efforts" (264). What we envisage here, then, is the gradual development of a UN post-conflict support system, comprising doctors, engineers and teachers from all those countries who lack the capacity or will to contribute towards military intervention. Military unionisation, moreover, might contribute towards the creation of 'peacebuilding armies' on a nation-state basis; i.e. facilitating the formation of battalions who identified more closely with the role of peacekeeping and peacebuilding than they did with national security.

Thus, given a schema of citizen-based global governance – and given some transition towards a democratised economy and a reformed United Nations – then it might become possible for global citizens to directly sanction military intervention; intervention premised on dire humanitarian need and on a commitment to effective and sufficiently-resourced post-conflict reconstruction.

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In this section, then, we have outlined six possibilities for how transnational pyramidal networks might enable citizens to restrict the capacity of states to declare war or deploy military force. Although we should not underestimate the power of vested interests, nor expect transnational pyramidal networks to eliminate war, these possibilities do suggest a means of transitioning towards global peace.

Given a world where pyramidal networks were common – if not ubiquitous – then anti-war protests might quickly acquire a global footprint. Transnational pyramidal networks, moreover, might allow

coherent strategy in Syria would be the deployment of "200 000 American troops on the ground indefinitely to provide security and support for an equal number of doctors and elementary school teachers" (Homeland 2015). The current realities of geopolitics make such a strategy unfeasible, but a citizen-based schema of global governance may create new possibilities for its realisation.

anti-war sentiment to become crystalized into permanent movements that oppose the pre-emptive deployment of military force, making possible the democratisation of war powers. Any consolidation of anti-war sentiment, moreover, might be effective in limiting the international trade in arms – especially by means of disrupting the 'revolving door' between government, the military and the arms industry. A unionised military might also give soldiers a voice in deciding the conditions of their own deployment or, at the least, give tacit support to the democratisation of war powers. These possibilities, in turn, might increase the possibility of regionalised security and the formation of a standing UN army. Finally, given multiple precedents for citizens restricting the use of force, it might become possible for citizens to directly authorize military interventions on the basis of the Responsibility to Protect. Similarly, citizens – both independently and via pre-existing state structures – might enable post-conflict reconstruction that was sufficiently inclusive and appropriately resourced.

All in all, then, these six possibilities might enable a transition towards a more durable global peace. These possibilities thus comprise the third component of a citizen-based schema of global governance.

7.5 Models of Global Democracy

In this chapter we have thus outlined our citizen-based schema of global governance. At its core is the possibility of new forms of global representation engendered by transnational pyramidal networks. Given that such networks achieve some threshold of legitimacy, then it follows that they might empower citizens to make global-level social demands for the implementation or modification of policy. The reform of the United Nations and a transition towards global peace might then become feasible under conditions where broad configurations of citizens made demands for such reforms. At the core of our schema is thus the replacement of the state with the global citizen as the key unit of analysis in international decision-making.

In this section we evaluate various models of global democracy in order to elucidate the differences and similarities between those models and our citizen-based schema of global governance. As Lu (2016: 7) notes, models of global democracy are essentially split along two paths: proposals for "noncoercive, decentralized structures of 'global governance'", and proposals for a world government with coercive powers. In what follows we therefore evaluate these two dominant models of global governance: cosmopolitan democracy and world government.

7.5.1 Cosmopolitan Democracy

The first core model of global democracy is cosmopolitanism democracy, which is perhaps best outlined in David Held's *Democracy and the Global Order*. We can define cosmopolitan democracy as "an attempt to generate democratic governance at a variety of levels, including the global level…This entails providing citizens with the opportunity to participate in world politics parallel to and independently from the governments of their own states" (Held and Archibugi 2011: 434). Hence, cosmopolitan democracy considers "sovereignty as a dogma to be overcome" (Archibugi 2012: 14). Our argument in this subsection is that cosmopolitan democracy and a citizen-based schema of global governance are, essentially, identical models. The key difference is that pyramidal networks could enable the realisation of cosmopolitan democracy; i.e. solve the problem of a 'prime mover' for how this change is to come about. We proceed by outlining the foundations of the cosmopolitan model.

Held (1995) argues that the international system is characterised both by the "persistence of the sovereign state system" and by the development of "plural structures of power and authority…[which have]…weak or obscure mechanisms of accountability". Under these conditions, the *de jure* sovereignty of states is increasingly made redundant by the fact that powerful states and economic actors increasingly negate the autonomy of both states and the citizens that comprise them. The answer, for Held, is a "common structure of political action" which would enable a "system of democratic governance" adapted to a multipolar world and the "diverse conditions and interconnections of different peoples and nations" (1995: 140).

To this end, Held suggests the development of a "democratic public law" based primarily on ensuring the autonomy of individuals to pursue their ends independently of coercion. The opposite of autonomy is nautonomy: the "asymmetrical production and distribution of life-chances which limit and erode the possibilities of political participation" or, in other words, any "socially conditioned pattern of asymmetrical life-chances which places artificial limits on the creation of a common structure of political action" (171). Democratic participation and autonomy are immediately constrained whenever nautonomy exists at a "site of power", which is an "interaction context or institutional milieu in and through which power operates to shape the capacities of people; that is, to mould and circumscribe their life-chances, effective participation and share in public decision-making" (173). Held identifies seven such sites of power: the body, welfare, culture, civic association, the economy, violence/coercion, and regulatory/legal institutions (176).

In essence, then, Held's project of cosmopolitan democracy is premised on creating a body of "democratic public law" that limits nautonomy in each of the seven sites of power. If such a law were to be adopted by every state and every constituency, a cosmopolitan democracy would result that

ensured the autonomy and security of every global citizen, no matter where they came from nor where they happened to be. Although the foundation of such a democratic public law must ensure basic autonomy, it need not be monolithic: it is an "*agenda* for democratic politics" and thus "necessarily leaves open the exact interpretation of each of the items on the agenda" (201, author's italics).

Hence, adapting from Dahl, Held (207) lays out five conditions for ideal citizen involvement in public affairs and collective decision-making, in which all forms of nautonomy would be "eradicated" and in which all participants would enjoy equal standing: 1) effective participation; 2) enlightened understanding; 3) control over the agenda; 4) voting equality at decisive stages; and 5) inclusiveness[153]. The five conditions are a "hypothetically projected reconstruction of the rules and norms of democracy – a counterfactual posit" (209). In other words, and harkening back to a Habermasian ideal-speech situation, Held suggests that the conditions are premised on "an ideal normative agreement" (162) between citizens. In other words, democratic public law would be premised on laws that citizens *would* agree upon, under ideal circumstances.

Thus, overall, cosmopolitan democracy bears a striking resemblance to our citizen-based schema of global governance. Both are premised on increased participation and deliberation; both understand subsidiarity as a key organising principle of autonomy and sovereignty[154]; both acknowledge the necessity of positive rights with regards to economy security[155]; both envisage the collectivisation of security[156]; and both are premised on the idea that the international system cannot be reconciled with state-level democracy unless state-level democracy is reconciled with the international system. Where our model differs from the cosmopolitan model is in the means of implementation. As Held (237) notes,

> *"The establishment of a cosmopolitan model of democracy is a way of seeking to strengthen democracy 'within' communities and civil associations by elaborating and*

[153] Note the similarity between these conditions and Dahl's eight conditions of polyarchy.
[154] Held notes that "Cosmopolitan law demands the subordination of regional, national and local 'sovereignties' to an overarching legal framework, but within this framework associations may be self-governing at diverse levels" (234). This would result in "an intensive and participatory democracy at local levels as a complement to the public assemblies of the wider global order; that is, a political order of democratic associations, cities and nations as well as of regions and global networks" (ibid).
[155] Held argues that suitable endpoint goals for cosmopolitan democracy would be the democratic accountability of international and transnational economic agencies, a "pluralization of patterns of ownership and possession", the socialization of investment by means of deliberation, and a transition towards a guaranteed basic income (279). As per the following chapter, these goals are identical to those outlined in our model of a democratised economy.
[156] Held argues for the establishment of an "effective, accountable, international military force" and a permanent shift to regional/international institutions of coercive force (279).

reinforcing democracy from 'outside' through a network of regional and international agencies and assemblies that cut across spatially delimited locales"

Perhaps as a matter of practicality, Held suggests that cosmopolitan democracy would result from the development of democratic public law from "without". Similarly, Archibugi (2012: 11) argues that international peace and democracy is the means by which to create "internal democracy". Thus, democratic public law precedes local participatory and deliberative democracy and it remains unclear how this is to be achieved in practice[157]. A schema of citizen-based global governance, however, results from localised participation and deliberation, and is facilitated by means of pyramidal networks. The 'prime mover' in our model is thus pyramidal networks, while the prime mover in cosmopolitan democracy remains unclear. The question, as Cochran (2002) puts it, is by what means can individuals in the global public sphere work together in order to make their views authoritative in international decision-making?[158]

In trying to answer this question, Held and Archibugi (2011) suggest various groups they may be "agents of cosmopolitan democracy": the dispossessed, migrants, cosmopolitan groups, global civil society, global political parties, and even multinational corporations. But, as they note, these various players do not "necessarily have an ultimate and coherent agenda for pursuing the democratization of global governance" (455). Held and Archibugi, therefore, beg rather than resolve the question of how cosmopolitan democracy is to come about. Although they allude to the possibilities of reconciling "top-down" and "bottom-up politics" (ibid), they fail to provide a means by which to do so.

Pyramidal networks, however, might solve this problem by means of broad configurations that included all the various groups of actors: the dispossessed, migrants, cosmopolitans, civil society organisations, political parties, etc. If such configurations were to formulate a body of democratic public law, and were large and representative enough to be legitimate, then we might have a recipe for the practical implementation of cosmopolitan democracy. We have previously argued that the implementation of formal pyramidal democracies – where top-tier delegates assume formal power and responsibilities – would require constitutions that outlined the rights and responsibilities of

[157] Archibugi (2004) responds to some criticisms of cosmopolitan democracy, but, unfortunately these responses really amount to reformulations of why cosmopolitan democracy is a good idea, and not how it is to be achieved in practice. Similarly, Archibugi (2012: 19) puts this responsibility on the "shoulders of aware citizens" but it remains unclear how they are to respond to this challenge.

[158] Cochran (2002) suggests that part of the problem may be a reliance on a purely deliberative approach as, for example, Dryzek (1999, 2000) takes, whereby a Deweyan pragmatic perspective may be more effective. The pragmatic approach understands the public as a "tool which serves the specialized function of helping individuals, through cooperative social inquiry, [to] work toward more effective control of the indeterminate situations in which they share a common interest" (Cochran 2002: 532). We would argue that a citizen-based schema of global governance successfully marries both approaches. Participatory budgeting, as we see in the next chapter, is a key example of how deliberation and practical problem-solving are combined.

various actors. The more that such constitutions became homogenised – in spirit or in content – the closer we would be to a unified body of democratic public law. In this sense, then, pyramidal democracy might facilitate the creation of cosmopolitan law and thus the realisation of cosmopolitan democracy.

7.5.2 World Government

In this subsection we briefly evaluate the second dominant model of global governance: a world government. Although transnational pyramidal networks might make it *feasible* to implement a world government, our general position is that a world government is not necessary to achieve peace, distributive justice, and sustainability. If these objectives can be met by means of a citizen-based schema of global governance – or cosmopolitan democracy enabled by transnational pyramidal networks – then a world government is unnecessary. In order to make this point, we proceed by evaluating the various arguments for a world government.

At least since the mediaeval era, arguments have arisen to the effect that global peace is not possible without a single sovereign state encompassing the entire earth. The argument is simple: if all states were to cede their sovereignty to a single confederated body in exchange for security guarantees, and each state were disincentivised from breaking with the covenant lest they provoke war with the central authority, then perpetual peace becomes possible. The logic of world government thus entails the logic of Hobbes's *Leviathan*, writ large on the world as a whole. In practical terms this would entail a "highly centralized and federal global system" (Kuyper 2016: 6) which would bring states under the authority of "just supranational institutions" (Cabrera 2004: 71). The central authority would have a monopoly on violence, ensuring both peace and the implementation of global-level policy.

As Tännsjö (2008) argues, the desirability of such a system stems from the contention that the three core requirements of global governance – peace, distributive justice, and environmental sustainability – are only achievable under conditions of a single global authority. In this sense, peace would derive from a single global monopoly on violence; distributive justice would derive from the ability of the central authority to distribute resources in such a way as to empower citizens to improve their own economic situation (Tännsjö 2008: 51); and environmental sustainability would derive from the ability of the central authority to tax negative externalities, like pollution, and to generally enforce environmental protection.

Historical experience seems to support the contention that, in the absence of a single authority, it is difficult if not impossible to meet these three requirements. Our central argument in this chapter is, however, that the three requirements might be met by means of a citizen-based schema of global

governance. If these assumptions are correct, then the desirability of a world state is brought into question, despite the fact that transnational pyramidal networks might make such a state more feasible. Specifically, and based on our arguments about UN reform, transnational pyramidal networks might become large and legitimate enough to force states to cede sovereignty to a higher power. We do not investigate this possibility here, however, because in a world where transnational pyramidal networks *were* large enough to create a world state, it would probably not be necessary to do so; i.e. a world state would be surplus to requirements.

Traditionally, moreover, it has been argued that a world state is inherently undesirable. It might result in an inescapable tyranny (Kant 2006) and thus a series of intractable civil wars (Waltz 1979; Rawls 2001). On the other hand, however, Kant also argues that a world government may be too remote from citizens and thus become inefficient and impotent. Waltz (2004, cited in Lu 2016: 1), also notes an argument from homogeneity, whereby it is suggested that a world government would erase differences between different societies and cultures and thus engender an anodyne or anaemic global civilisation. These arguments have merit and further support the idea that, were a citizen-based schema of global governance possible, a world state would be surplus to requirements.

As to the proposition that a world state is inevitable, we would submit that Wendt's (2003) reasoning is sound but that his conclusion – given the possibility of transnational pyramidal networks – is somewhat premature. Wendt argues, from a teleological or systems-thinking perspective, that a world state is inevitable because states interacting in a state system are in a continuous "struggle for recognition". This struggle operates on two levels simultaneously – between individuals and between groups (516). Moreover, Wendt makes two "simplifying assumptions": 1) that struggles for recognition occur within the state on the part of individuals and groups; and 2) that struggles occur at the international level between states. These struggles for recognition – essentially the recognition of autonomy, security and sovereignty – occur within five different possible stages of world organisation. The stages are as follows:

- In the first stage – a system of states – neither citizens nor states are recognised as autonomous or sovereign; the world is partially anarchic, and powerful states can 'kill' weaker states. This stage, like the next three stages, is inherently unstable – due to individuals and states continuing to struggle for recognition.
- In the second stage – a society of states – states are recognised as sovereign, but individuals are not. The treaty of Westphalia ushered such a system into being. It too is unstable.
- In the third stage – world society – individuals too are given some modicum of recognition. The UN charter and the UN declaration of Human Rights speak to the beginning of this stage.

It too is unstable, however, because of "the absence of collective protection against aggression" (520).

- In the fourth stage – collective security – the system gains an additional "boundary condition": not only are individuals and states expected to recognise each other's sovereignty, but they are also expected to defend each other on the principle of 'one for all, all for one' (521). The collectivisation of security by means of security pacts like NATO or the Responsibility to Protect (R2P) are examples of such changing boundary conditions. This stage is unstable, however, because powerful states can still infringe on the sovereignty and autonomy of weaker states. Moreover, despite the *de jure* recognition of human rights – including rights to economic security – many citizens remain locked in struggles for recognition.
- Over time, Wendt argues, weaker states may form blocs that counteract powerful states. Thus, in the fullness of time great powers may come to recognise that their interests are better served by fully recognising the sovereignty and autonomy of all states and citizens. Hence, the final stage – the world state – emerges inevitably as a result of the struggle for recognition.

In general, Wendt's reasoning is sound, and we would generally agree with his conclusion. The possibility of transnational pyramidal networks, however, challenges his "simplifying assumption" that struggles for recognition at the international level occur primarily between states. The underlying premise of our citizen-based schema is the replacement of the state with the citizen as the primary unit of analysis. In this sense, then, the underlying premise of our model is that the struggle for recognition could occur directly among citizens; the formation of large SMU configurations or a People's Assembly would exemplify successful outcomes to such a struggle.

Under these conditions, a stable and intermediate stage – between collective security and a world state – might become possible. By introducing transnational pyramidal networks, but by retaining Wendt's logical progression, we might see how mutual recognition of sovereignty and autonomy might be achieved independently of a world state. Hence, a world state may be surplus to requirements.

Overall, then, we would argue that although a world state might be desirable in order to meet the three core requirements of global governance, it might be surplus to requirements under conditions where a citizen-based schema of global governance was feasible.

7.5.3 Additional Models

We briefly evaluate three additional models of global democracy (Kuyper 2016): intergovernmental democratic states, deliberative democracy, and radical democracy. Our general position is that a

citizen-based schema of global governance might entails aspects of all three models. Be this as it may, none of these models, to our thinking, is superior to either a citizen-based schema or cosmopolitan democracy.

The intergovernmental states model posits that world politics is democratic insofar as the states that comprise the world system are democratic. The basis of the model is thus to ensure that individual states are maximally democratic, thus rendering world politics maximally democratic. As Kuyper (2016: 4) notes, this model has been advocated by, among others, Kant, Dahl and Rawls. What separates this model from other conceptions of global democracy, is the assertion that nation-state should play a "key normative and practical role in global democracy" (ibid). While pyramidal democracies might help to democratise individual states, and thus bring this model into being, it does not follow that this would be a desirable endpoint for global democracy. If our assumptions are correct that transnational pyramidal networks could facilitate a citizen-based schema of global governance, then there seems to be no reason for the nation-state to remain the key unit of analysis. Thus, this model seems underwhelming when examined in light of the possibility of transnational pyramidal networks.

One of the weaknesses of our model, however, is the existence of non-representative states – China and Russia perhaps being key examples. Could transnational pyramidal networks drive a citizen-based schema of global governance if citizens from major states were absent from those networks? Although we cannot definitively answer this question, we might draw on Petit (2010) who argues that citizens in effective and representative states should do two things: ensure that they enjoy maximum republican freedom in respect to one another, and then do everything possible to incorporate all states and citizens within this international order. In other words, establishing some measure of global democracy is the means by which to gradually include all states and citizens within that order. Hopefully transnational pyramidal networks can help to achieve these twin goals. If this is the case, then we can subsume the interstate model within our citizen-based schema.

The second model of global democracy is one premised on deliberative democracy. Such a model seeks to democratise – in terms of deliberative theory – those "informal and formal sites of *existing* governance arrangements from the local to the global level" (Kuyper 2016: 6, author's italics). Thus, instead of building new institutions of global governance, the key assertion in this model is that pre-existing structures should be democratised by means of increased inclusion and by ensuring that decision-making is collective and exposed to processes of public reasoning. In essence our citizen-based schema is an instantiation of global deliberative democracy, as suggested by Dryzek (1999, 2000) or Bohman (2004, 2010, 2014). As Kuyper notes, a standard criticism against this model is its

failure to "provide a specific institutional design which can be sought or realized under existing conditions" (ibid). We would argue that transnational pyramidal networks provide such a design.

Similarly, the gaps in other deliberative models might be plugged by means of transnational pyramidal networks. Habermas (2006) in his three-tiered[159] model of global governance, fails to make a case for why states would cede authority upwards or how the UN is to be reformed. Although he argues (175-6) that "world society" – transnational networks of civil society, NGOs, INGOs and corporations – alter the "de facto independence of states", it is unclear how this would enable the implementation of his model. As Scheuerman (2008) argues, a trend towards the hollowing out of the nation-state does not necessarily mean that powerful states are more likely to cede sovereignty upwards. It means, rather, that weaker states are more likely to find themselves locked in the orbits of powerful states and transnational actors. Thus, although Habermas presents a somewhat compelling normative vision, he fails to articulate a mechanism by which the vision might be realised. Transnational pyramidal networks might provide such a mechanism.

The third type of global governance model is one premised on radical democracy; i.e. models grounded on the idea that citizens can only be emancipated through the development of autonomous, self-governing communities and thus the overthrow – or bypassing – of entrenched socio-economic hierarchies (Kuyper 2016: 7) is necessary. Radical democracy is thus premised on the rejection of many liberal premises, like capitalism, property rights and class-based notions of governance (ibid). We would submit that transnational pyramidal networks might enable some aspects of radical democracy to be implemented – our model of a democratised economy, for example, is premised on the devolution of economic and political power down to the level of the individual and the community. If citizens so desired, then, pyramidal democracy might enable the kinds of autonomous self-governing communities that radical democrats envision.

In this sense, our model resonates with Scholte's (2012) suggestion for a "postmodern global democracy" that is premised neither on a statist nor a cosmopolitan vision of global democracy. Postmodern global democracy is premised on concepts that go beyond the bounded logic of the alternate and more traditional models. These concepts are transscalarity, plural solidarities, transculturality, egalitarian distribution, and ecological stewardship. Without going into much detail, we might see – because pyramidal networks are unconstrained by geographical space, time, or the identity of citizens – that all these concepts or principles might be realised by means of pyramidal

[159] The three tiers are: the supranational, exemplified by a reformed UN; the transnational, where global actors would compromise on joint policies related to energy, finance, and the environment; and the national level, where states would retain their core sovereignty, minus the right to go to war.

democracy. Hence, we would argue that pyramidal democracy might enable a postmodern global democracy.

But, because we are confident that pyramidal democracy can democratise the global economy by devolving economic power, as we argue in the following chapter, we remain unconvinced that democratic emancipation requires the radical overthrow of the existing system, nor the rejection of certain of the tenets of liberalism. In this sense, pyramidal democracy *could* enable a radical democratic model – like Falk's "stealth anarchism"[160], or the post-modern democracy of Scholte (2012), or the radical model of Hardt and Negri (2004) – but we simply do not think such models are absolutely necessary. A citizen-based schema of global governance – in conjunction with a democratised global economy – might allow us to have our cake and eat it too: enabling autonomous self-governance for communities, but still enabling those communities to confederate at the global level on the basis of some kind of common democratic body of public law.

What we are suggesting, then, is that our model of a citizen-based schema of global governance is not a "terminal endpoint" (Archibugi et al 2012) towards which we should strive. Instead it is a broad set of possibilities – made feasible by transnational pyramidal networks – which could enable the three core requirements of global governance to be met. Meeting those requirements might entail – for different communities – different elements of the various possible models. Although we suggest that cosmopolitan democracy is the most coherent model – and that it might be realised in practice by means of transnational pyramidal democracies – we are not suggesting that the model be applied from the top-down but that it develop organically from the bottom-up, thus possibly incorporating useful elements of the radical democratic model.

In this sense, then, a citizen-based schema of global governance resonates with the need for a "multidimensional approach to transnational democracy" (Gould 2012), which means "increasing democratic input" into global governance institutions, social institutions, economic institutions, as well as new forms of regional democracy and transnational communities. The eventual product of such input might take various forms and we are not *necessarily* committed to one form over another. What ultimately is important is that the model of global democracy enables citizens to participate in

[160] Falk (2014: 149), while acknowledging the "normative baggage" associated with the term anarchism, argues for "stealth anarchism" as a means of achieving humane global governance. Stealth anarchism would be a "covert borrowing and affirmation of principle anarchist positions and values" but without "overt reliance". In essence, the anarchist position favours decentralisation, non-state actors, voluntary transnational or translocal partnerships, a human rights culture, and a focus on ecumenical, spiritual or transcendental outlooks. It is these kinds of features, Falk suggests, that align well with the emancipatory aspirations of a humane global governance. Pyramidal networks, which are premised on subsidiarity, could enable this model of stealth anarchism, and thereby enable "sustainable communities" like those found in the works of Tolstoy, Ghandi, Paul Goodman, Murray Bookchin, and E.F. Schumacher (157).

international decision-making and to make social demands at the global level for the implementation or modification of policy.

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Thus, in summary, we would argue that – of all the models – the cosmopolitan model is the most coherent, although the form that it ultimately takes might be modified by aspects of other models. In many ways cosmopolitan democracy is indistinguishable from our citizen-based schema of global governance. They both have the same goals and the same methodologies. The difference is found merely in how the model is to be implemented: cosmopolitan democracy from the outside in, our model from the inside out. Bearing this in mind, our model appears to have the upper hand because it is premised on a well-defined prime mover: the pyramidal network.

Similarly, although a world state may be desirable if it can effectively meet the three requirements of global governance, we have argued that it would be surplus to requirements under conditions where a citizen-based schema was possible. Wendt's reasoning regarding the struggle for recognition among citizens and between states is compelling but, in light of the feasibility of transnational pyramidal networks, we would argue that a world state is not inevitable and that such struggles could be resolved by means of pyramidal democracy.

Over all, then, we would conclude that a citizen-based schema of global governance – if it is feasible – plugs many of the gaps in alternate models and may come to incorporate various aspects of those models. Specifically, the citizen-based schema – actuated by new forms of global representation – provides a mechanism by which states might cede authority to supranational bodies or by which citizens might integrate their preferences and public reasoning into processes of international decision-making. If this mechanism can be realised in practice than a citizen-based model of global governance might develop from the bottom-up.

7.6 Conclusion

In this chapter we have argued that transnational pyramidal networks may enable a form of global democracy that we call a citizen-based schema of global governance. At the core of the model is the replacement of the state with the citizen as the core unit of analysis. There are three components to our model: new forms of global representation, United Nations reform, and the possibility of restrictions on the capacity of states to unilaterally declare war or deploy military force.

The first component – new forms of global representation – is the bedrock of our model, enabling, in turn, the other two components. As we have argued, transnational pyramidal networks could enable the formation of large SMU configurations and transnational political parties. These two forms of global representation might enable citizens to formulate coherent sets of social demands or a joint manifesto; they are thus the primary progenitor of social demands. Interparliamentary institutions (IPIs) and a People's Assembly (PA), on the other hand, become the recipients of such social demands – tasked with finding appropriate respondents within the structures of national and international decision-making.

These forms of representation may in turn create new possibilities for the reform of the United Nations. A *sui generis* PA, in particular, may empower or enable the reform of the General Assembly which may, in turn, open up new possibilities for United Nations Security Council reform. Either as a result of this reform – or as an alternate unitary social demand – the implementation of Tobin tax might allow for the independent financing of UN operations. If it were possible to reform the UN in this way, we argue, then it might be possible to reform the international financial institutions like the World Bank, IMF and WTO. Reform of the international organisations – the UN in particular – is thus the second component in our citizen-based schema of global governance.

The third component comprises various possibilities – made feasible by means of transnational pyramidal networks – for restrictions on the use of force. In short, transnational pyramidal networks may consolidate anti-war sentiment, enable the democratisation of war powers, limit the international trade in arms, facilitate the unionisation of military personnel, and facilitate the formation of a UN standing army or rapid response force. Each of these possibilities increases the possibility of enabling citizens to authorize military intervention on the basis of the Responsibility to Protect and, more importantly, facilitate post-conflict reconstruction that was inclusive and sufficiently-resourced. Taken together then, these possibilities might facilitate a transition towards global peace.

The three components thus comprise our model of global democracy – a citizen-based schema of global governance. While the schema is itself a self-contained model – insofar as it meets the three core requirements of global governance – it is not necessarily a "terminal endpoint" (Archibugi et al 2012). It could enable the realisation of any number of alternate models: world government, cosmopolitan democracy, global deliberative democracy, anarchist collectivism, or radical post-modern democracy. Of these we suggest that cosmopolitan democracy is the most desirable model, and, moreover, that transnational pyramidal networks may instantiate this model from the bottom-up.

8. Towards a Democratised Economy

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8.1 Introduction

The majority of previous chapters have focussed on the feasibility of ICT reconciling deliberative democracy with mass engagement. As part of that argument, we suggested that democratic mechanisms and pyramidal democracies might lead to the formation of a landscape of pyramidal networks comprising the government, market, and civil society spheres. The broad-based adoption of democratic mechanisms, in particular, might be a recipe for the democratisation of the public sphere. In the last chapter, we outlined how this democratised public sphere might enable the formation of new types of global representation – SMU configurations, in particular – that might facilitate the adoption of a citizen-based schema of global governance. Such a schema might accelerate a transition towards global peace and enable citizens to make social demands for the global-level implementation or modification of policy.

In this chapter, our objective is to suggest how a landscape of pyramidal networks – comprising the government, market, and civil society spheres – might enable citizens to make social demands for the

implementation and modification of policy, such that the global economy became fully democratised. The purposes of such a process of democratisation would be two-fold. First, the political equality engendered by pyramidal democracy would be meaningless without some threshold of economic equality that would enable citizens to meaningfully participate. In this sense, the key function of a democratised economy is to provide some measure of social equality – broad-based access to the resources required for meeting basic needs, at a minimum, and for true self-actualization and self-development, at a maximum. Thus, the first function of a democratised economy is to provide a social minimum for all global citizens such that they can meaningfully participate in collective decision-making.

The second function is to harness this capacity for participation and decision-making so as to resolve the interrelated crises of the 21st century and, in doing so, enable a transition towards a post-scarcity economic order. We thus come, in this chapter, full circle – back to the envisioned *raison d'être* for reconciling democracy with mass engagement. We proceed as follows.

First, we outline what we mean by social equality, noting that a social minimum is fundamental to that meaning. Although we might justify the provision of a social minimum – or a democratised global economy – on the basis of Rawls's difference principle, it is not strictly necessary to do so. Our justification is instead primarily based on pure egalitarianism: that every human should be entitled to a share of natural wealth and the technological and cultural wealth inherited from previous generations. It is not our intention, however, to contribute to a theory of justice, but only to suggest how our model of a democratised economy relates to such theories. Finally, we argue that the full realisation of social equality implies "real" freedom to self-actualise and self-develop and thus implies a transition towards post-scarcity. We outline briefly how the various components of our model might help to realise the requirements for post-scarcity and thus engender greater social equality.

Second, we outline the four *base* components of our model of a democratised economy: participatory budgeting, fee-and-dividend taxes, a basic income, and monetary and investment reform. We call these components 'base' because they comprise a set of specific social demands orientated primarily towards governments at the local, national, and global level. It is the instantiation of these components that is envisioned as the means by which to realise the first requirement of post-scarcity: an economic floor – a social minimum – below which no citizen can sink. This is also the basis for social equality.

Third, we outline the two sphere components of our model of a democratised economy: workplace democracy and the sharing economy. These are 'sphere' components because the relevant social demands are more general and are orientated towards individual firms or clusters of firms. The key

idea is that the basic security engendered by the base components enables key changes in the market sphere; i.e. the enmeshment of large firms and corporations into configurations that include all stakeholders: employees, customers, shareholders, management, and the communities in which the firms operate. This state of affairs – in conjunction with broad industry-specific and labour-specific configurations at the local, national, and global level – enable social bargains to be struck that are conducive to the development of a maximal stock of humanmade and natural capital. In short, economic power is generally subordinated to social power, but in the interests of a democratised economy and a transition towards post-scarcity.

Simultaneously, the sharing economy – an economic fourth sector that is neither entirely private or public – enables citizens to engage in peer-to-peer production and consumption, thus realising significant efficiency gains that accelerate the transition towards post-scarcity. The sharing economy, moreover, allows citizens to make meaningful trade-offs between work and leisure, and facilitates a transition from wage-labour to more social, creative, and self-directed work. The picture that emerges, then, is a world where wage-labour and formal employment in the market-sector slowly give way to peer-to-peer production and consumption and where formal employment becomes more dynamic, variable, and self-directed.

The broad-based social organisation – and the alterative to market-based production and consumption – enabled by the workplace democracy and sharing economy components, therefore, lays a foundation for the realisation of the second requirement for post-scarcity: socio-economic institutions that incrementally maximise the social minimum by providing goods and services at low or zero marginal cost. The third requirement – sustainability – is met by means of ecotaxes, community-owned renewable energy systems, community-managed natural resources, and the implementation of circular economies.

Fourth, we summarise the six components as a whole, drawing particular attention to the way in which the implementation of the components occurs across three distinct phases. The phase-one implementation of each component helps to set precedents for the phase-two and phase-three components. In this sense, then, the interplay and interaction between the components helps to *build out* the landscape of pyramidal networks and thereby create larger and larger configurations capable of making more coherent demands for more systematic changes in policy. The result of such a process, we contend, might be the democratisation of the global economy and the realisation of social equality.

8.2 Social Equality

In this section our objective is to define what we mean by social equality and to outline – in brief – how the various components of a democratised economy interact so as to help realise social equality. In doing so, we revisit the requirements for a post-scarcity economic order that we outlined in Chapter 2. Our key argument is that a universal basic income is the basis for ensuring social equality, especially when such an income derives, over time, from a collaborative effort to reengineer the global economy on the basis of automation and environmental sustainability. Each of the six components in our model of a democratised economy relate, therefore, to social demands for polices that might facilitate a transition to post-scarcity, and thus to a universal basic income sufficient for social equality, basic security, and real freedom.

We define social equality as broadly equal access to the social and material means for self-actualization. By self-actualization we mean, after Maslow (1943), the capacity to fulfil one's potential. Self-actualization implies some capacity for human flourishing; we flourish when we have the freedom and means to explore and develop our talents, to undertake productive activity that is largely self-directed, and when we are embedded in webs of reciprocal social relations from which we derive value. Social equality, in this sense, entails the basic freedom and basic well-being to become an "actual or prospective agent" with the freedom to undertake purposive action (Gewirth 1996: 13). Moreover, as Gewirth cogently argues, the right to freedom and well-being are positive rights that require society – primarily the state – to become respondents to those rights. This lays a moral and practical foundation for the realisation of social equality. Finally, a society characterised by social equality would be one where people generally treated one another as equals, and the institutions of society were thus "designed to foster and reflect such attitudes" (Miller 2017: 16). One of our key claims, in this chapter, is that a democratised economy might engender such a society.

We proceed as follows. First, we outline the idea of a social minimum: a bundle of resources sufficient "in the circumstances of a given society" to enable citizens to lead a minimally decent life (White 2015: 1). We suggest that a social minimum might be provided by means of the components of a democratised economy. Second, we outline how our model of a democratised economy relates to theories of social justice, noting that our model might be justified on the basis of Rawls's difference principle or, simply, on the basis of pure egalitarianism. Third, we outline the link between social equality and post-scarcity, noting that the full realisation of social equality as "real freedom" implies a transition to post-scarcity.

8.2.1 The Social Minimum

A basic condition for self-actualization – and thus social equality – is the provision of basic necessities – like food, clothing, shelter, education, and healthcare. It is difficult, if not impossible, to self-actualize if our basic needs are not met. Thus, social equality entails the provision of a social minimum: a bundle of resources sufficient "in the circumstances of a given society" to enable citizens to lead a minimally decent life (White 2015: 1)[161]. A social minimum implies some level of economic equality and the question in the debate over such equality is "equality of what?" – what exactly do we want to equalise? In our model we take a *resourcism* approach, meaning that the social minimum is conceived primarily in terms of an unconditional basic income that would be sufficient for meeting basic necessities. Such an income would help to ensure "basic security" (Standing 2002, 2003): guaranteed access to a certain threshold of social and economic resources, such that citizens never felt chronically insecure, either physically or psychologically[162]. The social minimum is thus an important aspect of social equality, ensuring an economic floor below which no citizen can fall.

In our model of a democratised economy, the social minimum is provided by means of a combination of the various components: participatory budgeting, fee-and-dividend taxes, and monetary reform, in particular. Of these components, fee-and-dividend taxes – which redistribute resources at a global level – represent a specific infringement on the rights of others, primarily the right of the wealthiest 10% of the global population not to be taxed. We would argue, however, that this infringement is justified in view of the redistribution of liberties it engenders and on the potential of such redistribution to generate increasing and sustainable quantities of public and private wealth. We return to this idea shortly when we review our model of democratised economy in light of social and distributive justice. We mention the fee-and-dividend taxes now, however, because they have some bearing on potential justifications for the provision of a social minimum.

The provision of a social minimum can be justified on the grounds of utilitarianism, libertarianism, left-libertarianism, egalitarian liberalism, and democratic theories of justice (White 2015: 7). In utilitarianism, the provision of a social minimum is justified if it maximises utility in society. Given the diminishing marginal utility of income – that a poor person would get far more utility from one extra

[161] We might also think of the social minimum in terms of primary goods (Rawls 1973) or of basic capabilities or functionings (Sen 1985, 2001). The idea of primary goods, however, also includes bundles of rights and civil liberties, and Sen's concept of capabilities suffers from a potential sectarian problem in the sense that we may have no authoritative way of deciding what a set of basic capabilities should entail (White 2015: 3).

[162] We mean here the chronic psychological insecurity that might accompany the fear – especially for those in tenuous employment or underemployment – of becoming permanently jobless and/or homeless.

unit of resource then a rich person – the implementation of fee-and-dividend taxes as the basis for a social minimum might be justified.

From a libertarian perspective – and drawing here on Nozick's entitlement theory of justice – the social minimum might be justified because it would provide that basic level of welfare that, in the original state of nature, would have been available due to the general abundance of resources[163]. Left-libertarians, then, agree with Nozick that the basis of liberty is self-ownership – that the individual fully owns their own body and abilities – but argue that liberty also requires some share of global resources, lest self-ownership becomes a hollow concept. Thus, left-libertarians argue that a social minimum might be justified as a means of ensuring liberty.

Egalitarian liberals – like Rawls or Dworkin – argue that a social minimum is the basis for social justice, and thus some threshold of redistribution is required in order to meet the minimum requirements for justice. We return to these arguments in the following subsection.

From a democratic perspective, finally, it can be argued that, if we want citizens to enjoy political equality, then some provision of a social minimum is necessary. Under this line of reasoning (Dahl 1998), poverty constrains citizens from engaging in politics and collective decision-making, meaning that their interests remain systematically unaccounted for. If we are to realise political equality – a key tenet of liberalism – then it follows that we must provide a social minimum to enable such equality. In our model of a democratised economy, it is this last justification that carries the most weight. If we want the political equality engendered by pyramidal democracy to play a meaningful role in resolving the interrelated crises of the 21st century, then we must provide a social minimum that would help to drive meaningful participation in such networks. We thus have an instrumental reason for providing a social minimum: it may be necessary for the realisation of a post-scarcity economic order. Before we outline that argument – and how it relates to the various components of a democratised economy – we first briefly outline how the components relate to theories of social justice

8.2.2 Social and Distributive Justice

In this subsection we briefly outline the relationship between our model of a democratised economy and theories of social and distributive justice. Our objective is not to contribute to a theory of justice or, for that matter, make any bold claims about how pyramidal democracy relates to justice. Our

[163] Based on the Lockean proviso that private property is justified when one mixes one labour with natural resources and when doing so does not harm others by excluding them from the resource. Nozick (1974) argues that, so long as the original enclosure of private property was just, and all subsequent transfers of that property were just, then it follows that the current distribution of property is just. In the contemporary "full" world where all land and resources are private property, however, the Lockean proviso suggests that private property does harm others. Thus, the provision of a social minimum may be justified.

interest, in this chapter, is focussed exclusively on how pyramidal democracy might enable citizens to make specific social demands that might, in time, enable the provision of a social minimum and a transition to post-scarcity. Be this as it may, a few comments may be useful in order to indicate how our model relates to theories of justice. We draw on Miller (2017), here, to orientate this discussion.

First, the components should be considered generally in terms of pure procedural justice. In this sense, we are attempting – by means of the components – to distribute certain capabilities, and to make certain changes to the background institutions of society, such that increasingly just outcomes might be engendered. We are generally not concerned with whether or not individual citizens or groups of citizens avail themselves of these capabilities. We are concerned, rather, first, with the fact that these capabilities are equally distributed, and, second, with the expectation that any changes to background conditions will be maximally advantage to the society as a whole.

Second, the components are a non-comparative form of justice. Fee-and-dividend tax resources are not divided on the basis of comparative need and, in participatory budgeting, poor citizens do not distribute more resources than rich citizens[164]. In this sense, our model of a democratised economy is egalitarian; we give equal resources to all citizens and equal capabilities to utilise those resources in order to develop the capacity for the provision of a social minimum. Although, some kind of means-testing *could* determine how certain resources were distributed – at either the local, national, or global level – we do not explore that possibility.

Third, we would submit that the components align well – at the domestic level – with justice as fairness (Rawls 1971: 60). In other words, because the distribution of capabilities – that we envisage as the result of our components – are distributed equally for all global citizens, the implementation of the components is consistent with the first principle of justice: that each person has an "equal right to the most extensive basic liberty compatible with a similar liberty for others". In this way, any infringements of liberty that result from the components – increased taxation, socialisation of corporate equity, loss of managerial control, etc – are justified by means of the second 'difference' principle of justice: that social and economic inequalities are arranged such that they are in the interests of the least-advantaged members of society. In this sense, we argue that the current superstructure of the global economy *contradicts* the difference principle, and thus should be adapted in the interests of justice as fairness.

Fourth, in contradiction to Rawls, we would argue that the difference principle applies at the global level. As Blake and Smith (2015: 2) note, Rawls is explicit that his principles should apply only to justice

[164] We are not suggesting that this could not or should not be the case, just that we make no such assumption in our model.

within "the political society represented by a territorial state". The feasibility of a citizen-based schema of global governance, however – which is premised on transnational pyramidal networks and thus transnational polities – suggests the importance of a global, rather than merely international, conception of justice[165]. In short, we agree with 'Left institutionalists', like Beitz (1979) and Pogge (1989), that international institutions are akin to the basic structure of society in a nation-state – a structure which is at the heart of the Rawls's theory of justice. Because these structures are coercive – in the sense of determining life-chances for global citizens – then it follows that the difference principle would apply at the global level. This implies, in turn, that social and economic inequalities would be justified only when they were to the benefit of the least-advantaged global citizen. The various components of a democratised economy, we suggest, go some way towards restructuring international institutions to better align with a global application of the difference principle.

Be this as it may, we are not necessarily concerned with promoting or defending a conception of global justice based on arguments related to whether or not international institutions are just. Our model of a democratised economy is premised, instead, on what might be called "pure egalitarianism" (Blake and Smith 2015: 11). In other words, that the rights and capabilities of a democratised economy should apply to all global citizens because they are human beings, and thus should be entitled to a share of the abundance provided by nature, on one hand, and the technological and cultural inheritance bequeathed by previous generations, on the other. Rather than arguing for *why* this kind of egalitarianism should prevail, we are instead more interested in *how* it might practicably be realised by means of pyramidal democracy and the democratisation of the global economy.

Thus, in this subsection, we have briefly outlined the relationship between our model of a democratised economy and certain aspects of theories of justice. The key idea is that a democratised economy is premised on a procedural and non-comparative form of redistribution and institutional change. Although we *might* justify these interventions on the basis of Rawls's difference principle, it is not our intention to do so. This is for two reasons: First, our interventions are premised on pure egalitarianism that sees all humans as equally entitled to some threshold of natural and social wealth. Second, our interventions have an instrumental purpose – to resolve the interrelated crises of the 21st century and to enable a transition towards post-scarcity.

[165] In theories of international justice, the state is "taken as the central entity of concern" and "justice among nations or states is the focus" (Brock 2017: 1). In global justice, however, the focus is on justice among human beings more generally (ibid).

8.2.3 Social Equality and Post-Scarcity

In this subsection, we outline how social equality relates to post-scarcity. Our key argument is that the provision of a social minimum might enable a transition to post-scarcity and real freedom. This is because a social minimum might enable the social and economic organisation necessary, more generally, for the development of a maximal stock of humanmade and natural capital. Because a maximal stock of capital is necessary for real freedom and a transition towards more social, creative, and self-directed work, then it follows that some transition towards post-scarcity is necessary for fully realising social equality. In this sense, then, full social equality requires a transition towards post-scarcity and a transition towards post-scarcity is premised on the provision of a social minimum.

We proceed as follows. First, we summarise the ways in which capitalism tends to undermine basic security and social equality. Second, we summarise the requirements for a transition towards post-scarcity, noting how they imply the provision of a social minimum. Third, we suggest how the components of a democratised economy might help to realise the requirements for post-scarcity. Thus, we outline how social equality relates to post-scarcity and how both might be realised by means of a democratised global economy.

Recall that in Chapter 2 we outlined some of the problems engendered by a capitalist mode of production: 1) the perpetuation of scarcity-generating institutions – inequitable property rights, debt-based monetary systems, gender and racial hierarchies – all of which help to confine "advanced technology within a commodity framework"; 2) an assumption that human beings are insatiable consumers and thus have unlimited wants, thereby perpetuating the creation of false wants that perpetuate "toil, aggressiveness, misery and injustice"; 3) the artificial scarcity of money that restricts productive investment, reduces employment, and dampens aggregate global demand, thereby perpetuating cycles of underinvestment, underemployment, and underutilised productive capacity; and 4) an assumption that nature is merely a "supplier of various indestructible building blocks" which are "substitutable and superabundant" and, therefore, that no limitation exists that prevents substituting natural capital and ecosystem services with humanmade capital.

When the logic of capitalism engenders these problems then it works against the possibility of social equality and self-actualization. As Wright (2010: 44) notes, although capitalism is an engine of economic growth, it also "inherently generates vulnerability, poverty, deprivation and marginalization". Rather than basic security, capitalism is more 'productive' under conditions of basic *insecurity*: the more vulnerable that workers are, the more 'value' that can be extracted from them. The basic insecurity of workers is thus, generally, a desirable feature under capitalist modes of production. Capitalism, furthermore, has no mechanism by which to deal with sustained low

aggregate demand: if consumers have no purchasing power, then no incentive exists to produce more goods or increase investment in productive capacity, even though such an expansion in investment is *the means by which* to generate that purchasing power[166]. Finally, this problem is compounded by the development of machine learning and advanced automation, which further displace wage-labour and reduce aggregate effective demand. Capitalist logic is insufficient to deal with these interrelated problems.

Thus, if are to realise social equality by means of democratising the economy, then this process of democratisation must be geared towards overcoming the problems engendered by capitalist logic. Moreover, we submit that these problems might be overcome by means of transitioning to a post-scarcity economic order. Hence, our three requirements for a transition to a post-scarcity economic order: 1) socio-economic institutions whose function is to maintain an economic *floor* sufficient for the provision of all basic human needs; i.e. a social minimum; 2) socio-economic institutions that incrementally raise the floor over time by providing more goods and services at low or zero marginal cost; and 3) the embedding of 1 and 2 at optimal scale within the global ecosystem, such that the global economy becomes premised on a maximal sustainable flow of energy and material.

The first requirement speaks to the need for a social minimum that ensures basic security: universal access to the means of meeting basic needs like food, water, clothing, shelter, education, healthcare and transport. This is the *floor* below which no citizen can fall and thus the basis of social equality. The provision of such a floor implies the partial dismantling of a key scarcity-generating institution: the confining of advanced technology within a commodity framework. As we suggested in Chapter 2, there are no inherent limitations in materials or labour that would prevent global economies from meeting the basic needs of all citizens. What *is* required, however, is a means of preventing the market from commodifying the provision of basic needs such that billions are excluded from meaningful opportunities for self-development and self-actualization.

The second requirement speaks to an iterative process of reengineering the global built environment so as to harness the efficiency gains of advanced technology in all economic processes. This implies the global deployment of renewable energy systems, the rapid automation of all automatable industrial and commercial processes, and the integration of smart technologies such that all processes can be monitored, balanced, and streamlined. It also implies the socialisation of the benefits that would accrue to new thresholds of efficiency, such that the equitable distribution of these benefits

[166] Varoufakis (2015) argues that the global economy suffers from a "twin peaks paradox" – mountains of debts, on one hand, and a mountain of "idle cash" on the other. These twin peaks fail to cancel each other out because aggregate demand is too low for corporations to make productive investments. The result is stagnant wages, unemployment, and low aggregate demand which perpetuates the crisis.

raises the capabilities for self-development on the part of all citizens; i.e. iteratively maximises the social minimum. Building out this infrastructure implies, furthermore, a third industrial revolution and "one last surge of massive employment" involving "semi-skilled, unskilled, professional and conceptual labour" (Rifkin 2017). In the medium-term, then, this implies a transition towards full employment, and, in the long-term, a transition away from wage-labour and towards vocational, social, and creative work.

The third requirement speaks to the need to embed the built environment and all economic processes within the carrying capacity of the global ecosystem; i.e. the attainment of an optimal scale for the global economy whereby the throughput of energy and material does not exceed the capacity of the environment to sustainably provide such throughput. This implies halting and reversing climate change, deforestation, over-fishing, over-farming, industrial agriculture, and the wasteful depletion of unrenewable resources. It also implies the development of circular economies where the waste from one industrial process becomes the feedstock for another industrial process. Similarly, it implies that all material products should be maximally recyclable, reusable, and repairable. It might also imply the short and medium-term reduction in the total volume of material throughput; i.e. limits on the capacity of citizens to produce and consume "garbo-junk" (Daly and Farley 2004). Ecotaxes that disincentivise the unsustainable production of disposable consumer goods and incentivises the sustainable production of reusable goods is thus a key requirement. Similarly, incentivising *access* to goods and services, rather than ownership, is important.

The full realisation of social equality is thus linked to a transition towards a post-scarcity economic system premised on realising these three requirements. The six components of our model of a democratised economy help to implement these three requirements in specific ways.

The first requirement – a social minimum – is realised, in the long-term, by means of the provision of a universal basic income, but, in the medium-term, by stimulating local investment, employment, production and consumption. These latter outcomes are realised by means of localised participatory budgeting, the introduction of local currencies, and the democratisation of banking and monetary policy. The idea is to stimulate the development of local infrastructure – especially community-owned and managed energy systems and agricultural initiatives – and thus provide citizens with the means of meeting their own basic needs. In time, the provision of a basic income ensures that no citizen lacks the means of meeting those needs.

The second requirement is met by accelerating the development of local and national infrastructure by means of fee-and-dividend taxes, broad-based monetary and investment reform, and the subordination of transnational corporations to their various stakeholders. The idea here is that the

components provide a means to finance and coordinate the deployment of a maximal stock of humanmade capital. Fee-and-dividend taxes provide seed funding for investments in productive capacity, monetary reform accelerates such investments by incentivising productive investment rather than debt-based consumption or asset-price inflation, and transnational corporations provide the institutional capacity to integrate global production-consumption nexuses such that investment is both maximally efficient and maximally inclusive.

The third component is realised primarily by means of the global deployment of renewable energy systems, the incentivisation of sustainable agroecology, the community-based management of natural capital, and the incentivisation of energy efficiency and circular economies. Fee-and-dividend taxes and monetary reform, in conjunction with participatory budgeting, enable local communities to fund and manage renewable energy systems and agricultural initiatives. The organisation of citizens into pyramidal networks – made more feasible as the components are incrementally realised – makes it more feasible for citizens to make social demands for collectively managing natural resources. Workplace democracy, in conjunction with large SMU configurations, enables citizens to incentivise transnational corporations to design and implement circular economies.

If the various components in our model of a democratised economy can help to implement the three requirements for post-scarcity, we argue, then social equality and self-actualization for all global citizens may be realisable. When we outline each component in full, as we do later, we see how pyramidal democracy makes the implementation of each component feasible and how each component, in turn, helps to enable the other components. The implementation of each component necessarily entails a *social demand* to be made by citizens, and to be met by governments and elites. We thus envision a *process of democratising the economy*, where social demands gradually lead to the implementation of components which, in turn, lead to new social demands. The envisioned end-point to this process is the full realisation of social equality, embodied primarily in the provision of a universal basic income – paid regularly and unconditionally – to all citizens. The purchasing power of our universal basic income would thus be a measure of the extent to which we had transitioned towards post-scarcity.

So, in summary, if we want the political equality engendered by pyramidal democracy to mean something, then it must enable social equality: broadly equal access to the social and economic resources required for self-development and self-actualization. At a minimum, social equality thus implies a floor below which no citizen can fall and, at a maximum, a universal basic income sufficient for real freedom; i.e. a positive right to self-develop and self-actualize. The provision of a maximal universal basic income, moreover, would require the creation of a maximal stock of humanmade and

natural capital. This implies rapid automation and effective ecological stewardship. It also implies a shift in the medium-term towards full employment, and then, in the long-term, a transition away from wage-labour and towards more creative and self-directed work. To fully realise social equality, then, requires a transition towards post-scarcity. Transitioning towards post-scarcity, in turn, requires a series of social demands to be met – each related to one of the components in our model of a democratised economy. In the following section, we outline three necessary provisos and clarifications before we outline how pyramidal democracy enables the projection of social power so as to enable those demands to be met.

8.3 Provisos and Clarifications.

In this section, our objective is to briefly outline three provisos. First, we note that our model of a democratised global economy is one possible model; nothing suggests that citizens would select the model automatically or that they would reach consensus about the feasibility and desirability of the various components. Second, we ground our model in the varieties of capitalism literature by noting that it is not, itself, a variety of capitalism. Instead, it is a set of policies geared towards reducing uncertainty, spurring innovation, and incentivising collaboration. Each of these policies may be more or less acceptable to citizens depending on the country or variety of capitalism in question. Third, we note that – because pyramidal democracy enables citizens to project significant power – more radical models of economic democracy may not be necessary. This relates to our contention, developed later, that worker self-management is not crucial to our model of a democratised economy.

First, and most importantly, it is not our intention to suggest that the implementation of pyramidal democracy implies that citizens would automatically agree to make social demands for the democratisation of the global economy, especially not in the sense of choosing the specific policies that comprise the various components we outline in the next section. There may be widespread disagreement about the feasibility or desirability of, for example, a universal basic income or a carbon tax. Such disagreement might then weaken, or even derail, any social demand for the implementation of that component. In this way, there are any number of possible outcomes when it comes to the application of pyramidal democracy to the global economy.

Thus, we are not suggesting that our model of a democratised global economy is the best or only set of economic policies that might result from the instantiation of pyramidal democracy. We would argue, however, that a transition towards post-scarcity requires the kinds of radical change in policy exemplified by the six components. The importance of the argument thus turns on the idea that such radical changes *would* be feasible in the event that global citizens became organised by means of

pyramidal democracy. The exact set of policies chosen would depend on the values and interests of citizens in conjunction with the capacity of experts and political entrepreneurs to convince citizens of the desirability of one path of action over another.

Second, it is important to ground our model of a democratised economy by outlining its relationship to the different types or varieties of capitalism. Streek (2010), for example, identifies four dominant models of capitalist variety: social-embeddedness, power-resource, historical-institutionalist, and rationalist-functionalist. Each approach is made distinctive by the source of its variety, its hegemonic actors, its source of economic order, and its source of economic performance. The social-embeddedness model, for example – best typified by Japan – draws from tradition as its source of economic order, has social and cultural elites as its hegemonic actors, and utilises social integration and strong networks as the source of its economic performance. The rationalist-functionalist model – best typified by the liberal economies of the USA and the UK – draws from the consensual pursuit of efficiency as its source of economic order, has efficiency-maximising elites as its hegemonic actors, and utilises different institutional capacities as the source of its economic performance. It is not necessary, however, to examine the four variants of capital in detail. The key idea here is simply that different countries have developed and deployed different models of capitalism due to a variety of socio-cultural, historic, political, and economic reasons.

Before we reflect on this point further, we should outline the highly influential *variants of capitalism* approach to comparative political economy. This approach, developed by Hall and Soskice (2001), posits a theory of 'comparative institutional advantage' premised on the idea that countries can be divided into essentially two camps: liberal market economies (LMEs) and coordinated market economies (CMEs). The USA exemplifies the former and Germany the latter type. In Hall and Soskice's formulation, the function of the economy – comprising firms – is to solve complex coordination problems in such a way as to efficiently produce goods for sale within competitive markets. Solving coordination problems thus entails the development of relationships across five spheres: industrial relations, vocational training and education, corporate governance, inter-firm relations, and employee relations.

While LMEs depend primarily on hierarchies and market signals to coordinate these relationships, according to Hall and Soskice, CMEs draw on a further set of institutions and organisations. In general, these further institutions are those that help to reduce the uncertainty actors have about each other's' behaviour, and thus help to engender coordination strategies that ensure higher returns to all concerned. Drawing on Ostrom (1990), Hall and Soskice (2001: 10) note that these institutions typically provide capacities for: 1) exchanging information among actors; 2) monitoring behaviour;

and 3) sanctioning defectors. Examples include business or employer associations, trade unions, networks of cross-shareholding, and legal or regulatory institutions that facilitate collaboration and information-sharing.

The basic idea, then, is that LMEs rely on flexible labour markets, general rather than specific skills, limited state regulation, short-term profitability rather than long-term value, and the acquisition of technology via the market rather than by collaborative research. In contrast, CMEs rely on long-term partnerships with employees and trade unions, investment in sector-specific skills, regulated markets, long-term value, and the development of technology via sector-wide collaborative research and development. A key claim, in this approach, is that LMEs are better suited to radical and high-risk innovation while CMEs are better suited to incremental and low-risk innovation. These different capacities for different types of innovation translate into 'comparative institutional advantage'; i.e. the different varieties of capitalism have different functions and engender different processes.

Now that we have some idea of what we mean by varieties of capitalism – both those types identified by Streek (2010) and others[167], and the schema suggested by Hall and Soskice (2001) – we can outline how our model of a democratised economy relates to the varieties of capitalism literature.

First, we should immediately note that our model of a democratised economy is not, itself, a variety of capitalism. Rather, it is a set of policies geared towards developing the capacity for providing a universal social minimum and, in doing so, enabling the kind of democratic experimentation necessary for a transition towards post-scarcity. As such, the policies in question might interact with different types of capitalism in different ways, and firms in different types of economies may be more or less willing to support different policies. It is beyond the remit of this chapter to explore the potential relationship between different variants of capitalism and a model of a democratised economy.

We can, however, by drawing on the distinction between LMEs and CMEs, identify some broad tendencies. We must first note that, despite the fruitful debate generated by Hall and Soskice's varieties of capitalism approach, the theory has attracted substantial criticism on both methodological and empirical grounds (Streek 2010; Reale 2018). In short, the distinction between LMEs and CMEs is too simplistic and assumes a homogeneity at the country-level that simply does not exist. Hence, the idea of comparative institutional advantage and the dyadic varieties of capitalism approach is "somewhat dead" (Reale 2018: 7).

By using LMEs and CMEs as ideal types, however, we can tease out useful observations about the relationship between our model of a democratised economy and actually-existing capitalism today.

[167] Amable (2003), for example, identifies five rather than four types.

Specifically, we can identify three perceived outcomes of a democratised economy: 1) reducing uncertainty among all economic actors; 2) incentivising radical innovation, especially at the local level; and 3) incentivising collaborative, rather than competitive, economic strategies geared towards creating long-term value rather than short-term profitability. We can briefly outline each of these perceived outcomes in turn.

Reduction of uncertainty: CMEs – or those variants of capitalism other than the rationalist-institutionalist type – draw stability from the fact that uncertainty between economic actors is reduced by means of political power sharing, co-determination, strong social networks, or strong traditions. This stability enables firms to solve complex coordination problems in ways that are less dependent on competition or market signals. As Hall and Soskice (2001: 11) argue, a capacity for deliberation between actors is at the core of this reduction of uncertainty. In our model, the introduction of pyramidal democracy across the economic sphere is the means by which deliberation is instantiated and, therefore, how uncertainty between actors – firms, trade unions, and the state – is reduced over time. For individuals, on the other hand, uncertainty is reduced by those policies – a universal basic income, for example – that increase economic security and thus enable long-term planning.

Radical innovation: LMEs, according to Hall and Soskice, are well suited to radical innovation because firms can draw on flexible labour markets, quickly acquire new technologies by purchasing other companies, and rapidly access venture capital. In a related way, our model of a democratised economy is envisaged to incentivise radical innovation by means of similar processes. A universal basic income, for example, would help to make labour markets more flexible, allowing firms to experiment more broadly with new product lines or business processes. Similarly, individuals would find themselves more at liberty to invest in new skills or to start new businesses. Monetary reform and participatory budgeting, similarly, would help to open up new sources of finance and perhaps facilitate rapid and more radical innovation.

Collaborative strategies: One characteristic that defines CMEs, or associated variants, is the predominance of collaborative strategies between capital and labour that tend to reduce working hours, equalize incomes, and contribute to a more even distribution of wellbeing (Hall and Soskice 2001: 21). Although there is certainly a role for inter-firm competition – and the efficiency generated by means of pure market signals – it seems unlikely that the interrelated crises could be solved by competition alone. In this sense, a core envisaged outcome of a democratised economy is the development of collaborative strategies at all levels of the global socio-economic system, strategies

that deemphasize short-term profitability and emphasize long-term value. All six components are geared, essentially, to incentivising such strategies.

These three envisaged outcomes thus suggest how our model of a democratised economy relates to different variants of capitalism. Rather than the model representing a single type of capitalism, it is a set of policies that would help to reduce uncertainty, accelerate innovation, and incentivise collaboration at the level of the community, firm, industry, or sector. In this sense, our model of a democratised economy may be more or less compatible with a specific variant of capitalism, but not to the extent that it would be wholly incompatible with any given variant.

One might argue, however, that capitalism – in any of its variants – is incompatible with a democratised and sustainable economy. Similarly, one might argue that worker self-management is a crucial component of a democratised economy. Hence, our third and final objective in this section is to briefly outline the relationship between our model of a democratised economy and more radical models that reconfigure key aspects of the capitalist economic system. We are thinking specifically of Schweickart (1993, 2001) who – drawing on the examples of Yugoslav socialism, Japanese capitalism, and Mondragon cooperativism – argues for an alternative to capitalism, "economic democracy" (ED), which is a form of worker-managed market socialism (1993:67-68).

Schweickart's model presupposes political democracy – i.e. a constitutional representative government that guarantees basic liberties – and has three basic features: 1) each productive enterprise is managed democratically by its workers; 2) the economy is market-based with raw materials and consumer goods bought and sold according to supply and demand; and 3) new investment is socially controlled, generated by taxation, and is "dispensed according to a democratic, market-conforming plan" by means of a network of publicly-controlled local and national banks. In this sense, ED essentially dispenses with the private ownership of capital.

Although there is much to recommend ED, one might argue that it tends to create as many problems as it solves. For example, it remains unclear where petty capitalist enterprises – like restaurants – end and where worker self-management and the socialisation of capital begins (see 1993: 132). It is also unclear by what mechanism the "invisible hand" is supplemented by the "visible hand of democratic control" when it comes to the socialization of investment (142). It is not our intention, however, to provide a detailed criticism or defence of ED, or to suggest how pyramidal democracy might enable the model to work in practice, which it might. We are concerned, rather, with responding to the potential claim that a more radical economic model – one that perhaps dispenses with the private ownership of capital – is necessary for a democratised economy.

This chapter is, in many ways, a response to this claim. This is particularly the case because the six components of a democratised economy exemplify the kind of far-reaching policy changes that might become politically feasible as a result of pyramidal democracy. The argument could be made that ED dispenses with the private ownership of capital because doing so is a necessary prerequisite for dismantling a system of power premised on such ownership. In a world without pyramidal democracy, I think this argument has much to recommend it; i.e. radical and revolutionary change is the only feasible means of overcoming the vested interests which dominate the capitalist system. The whole premise of pyramidal democracy, however, is that deliberative networks could enable citizens to project sufficient power to overcome such interests. Under such conditions, the necessity for dispensing entirely with private ownership is far less convincing.

Whether one accepts this argument really depends on whether or not one accepts the possibility of citizens projecting sufficient power by means of pyramidal networks. If one does, then a radical model like ED may seem excessive. If one does not, then an argument could be made that pyramidal networks could fill many of the gaps in Schweickart's model, especially as a mechanism to enable the requisite socio-economic transition. Under such conditions worker self-management would be a necessity. We are not, however, making that argument here. Rather, we are suggesting that the six components are a means of transitioning towards a more equitable and sustainable economy by effectively taxing private wealth and then distributing those resources in a way that systematically incentivises innovation and grows the capacity of the economy to provide a social minimum. If this is possible, then the more radical components of ED – worker self-management included[168] – are surplus to requirements.

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In this section, we have outlined three provisos or clarifications. First, we noted that we are not suggesting that citizens would automatically choose the policies that constitute our model of a democratised economy. Second, we noted that our model, itself, is not a type of capitalism but rather a set of policies geared towards reducing uncertainty, increasing innovation, and incentivising collaboration. Third, we suggested that the a more radical model of a democratised economy – one that dispenses with the private ownership of capital – may not be necessary if pyramidal networks enable citizens to project sufficient power.

[168] We return to the desirability of worker self-management when we deal with the fifth component, workplace democracy.

8.4 THE BASE COMPONENTS OF A DEMOCRATISED ECONOMY

In this section we evaluate the four *base* components of a democratised economy: participatory budgeting, redistributive fee-and-dividend taxes, a universal basic income, monetary and investment reform. In the following section, we evaluate the two *sphere* components of a democratised economy: workplace democracy and the sharing economy. We make the distinction between base and sphere for the following reasons: 1) the base components relate to specific social demands for specific policies, orientated primarily towards governments; 2) the sphere components relate to general processes and less specific social demands, orientated towards individual firms or clusters of firms within the market sphere; and 3) the base components play a formative role in determining the effectiveness of social demands related to the sphere components. In this sense, while the base components set the conditions for a democratised economy, the sphere components are where we expect many of the implications of those conditions to ultimately play out. We will clarify this distinction as we proceed.

The cumulative envisioned effect of realising the base components is the realisation of the first requirement for post-scarcity: the development of socio-economic institutions whose function is to maintain an economic *floor* sufficient for the provision of all basic human needs. In this sense participatory budgeting, fee-and-dividend taxes, a universal basic income, and monetary reform, are all envisioned to stimulate local and sustainable investment, consumption, and production. While the envisioned endpoint is the provision of a universal basic income sufficient for basic security, that demand derives ultimately from an iterative process of self-development and actualization at the *community level*. In this sense, a universal income is not the result, simply, of a single social demand, but rather the envisioned outcome of a collaborative process of developing the socio-economic institutions capable of providing such an income.

This collaborative outcome is envisioned as the result of a process of *interaction* and *interplay* between the various components over time. In this sense, we anticipate three broad phases for the democratisation of the economy as a whole: an initiation phase (phase-one), an intermediate phase (phase-two), and a final phase (phase-three). A social demand for the phase-two or phase-three implementation of a component generally requires a denser landscape of pyramidal networks than for a phase-one social demand. When the phase-one implementation of a component is realised, then the pyramidal networks associated with that component are likely to become better instantiated – with greater reflexive legitimacy – and thus more empowered to make more extensive social

demands. Components at phase-one thus set precedents for the implementation of components at phase-two and phase-three.

Participatory budgeting at the local-level, for example, facilitates the development of a landscape of town-specific and city-specific pyramidal networks. The combination of these networks into larger configurations, in conjunction with the precedent set for the democratic allocation of resources, makes more feasible a SMU configuration large enough to force the implementation of fee-and-dividend taxes at the global-level. The revenues from fee-and-dividend taxes, in turn, incentivise citizens to participate in participatory budgeting, and thus accelerate the development of larger and more effective pyramidal networks. Larger and more effective pyramidal networks imply more effective social demands for the implementation of other components, like monetary reform or a universal basic income. In this way, then, the partial implementation of any one component cumulatively increases the reflexive legitimacy of pyramidal networks, and thus makes more feasible the full implementation of all components.

Thus, given this cumulative interplay between the implementation of the different phases of components, the envisioned outcome of implementing the four base components – participatory budgeting, redistributive fee-and-dividend taxes, a universal basic income, monetary and investment reform – is the development of socio-economic institutions capable of providing basic security for all citizens. The implementation of the base components, simultaneously, helps to drive the implementation of the sphere components: workplace democracy and the sharing economy. The envisioned outcomes, here, are the gradual subordination of concentrated capital to social control, on the one hand, and the simultaneous development of peer-to-peer consumption and production, on the other. Both these outcomes are important for developing a maximal stock of humanmade and natural capital, and thus the provision of a maximal basic income.

Hopefully this snapshot of the interplay between the various phases of the six components gives us some idea of how a democratised economy might be realised and thus how a maximal universal income is to be provided. We proceed, however, by outlining the four base components and the effect that the partial implementation of each component has on accelerating, ultimately, the full implementation of all components.

8.4.1 Participatory Budgeting

Participatory budgeting is a "decision-making process through which citizens deliberate and negotiate over the distribution of public resources" (Wampler 2007: 21). This often means, in practice, that a local government or municipality asks citizens to participate in deciding how part of the budget is spent. Three basic principles undergird participatory budgeting: 1) grassroots democracy via citizen

assemblies in order to select citizen representatives and delegates; 2) social justice whereby more funds are allocated to poorer areas; and 3) citizen control whereby selected delegates convene on a regular basis in order to observe and monitor the implementation of projects, reporting back to their constituents (Sintomer et al 2008: 167). Participatory budgeting originated in Brazil, with the "prototype" being the Porto Alegre model (Moynihan 2007)[169].

As may be apparent, pyramidal democracy aligns well with the basic principles of participatory budgeting, enabling both grassroots democracy and the sequential selection of delegates. Our main claim, then, is that pyramidal democracy and participatory budgeting are complementary initiatives and that implementing one may help to implement the other. Both initiatives are envisioned as a means of 'building out' the landscape of pyramidal networks, in both the government and community spheres. Participatory budgeting might help to realise social equality by providing public goods, by localising investment, by stimulating local demand, and by setting a precedent for the democratic allocation of resources.

In phase-one – the envisioned initiation phase of a process of democratising the economy – pyramidal democracy helps to drive the adoption of the Porto Alegre model of participatory budgeting. It does this by enabling citizens to form pyramidal networks and thus make a social demand for the implementation of participatory budgeting procedures[170]. Where participatory budgeting procedures were already in place, pyramidal democracy might help to drive participation and make those procedures more transparent and deliberative. In this sense, pyramidal democracy and participatory democracy are complementary: each enhances and enables the other. This is particularly true when it comes to e-participatory budgeting, where online systems are deployed alongside face-to-face processes, most often to reduce costs and to increase inclusion and participation (Peixoto 2008). E-participatory budgeting has been successfully demonstrated in a variety of cities across the global south (Matheus et al 2010; Sampaio et al 2011; Coleman and Sampaio 2017), even in cities with a prominent 'digital divide' (Allegretti 2012).

Thus, as part of phase-one, we might expect the integration of e-participatory budgeting functions into our bespoke application: merging deliberation and delegation functions with resource allocation functions. This might help to further drive the adoption of both pyramidal democracy and participatory budgeting: what we might now call "pyramidal budgeting". The adoption of pyramidal budgeting, over the course of phase-one, would help to build out a landscape of village-specific, town-

[169] The Porto Alegre model is based on meaningful bottom-up citizen participation, in collaboration with local government, to deliberatively select, deploy and monitor public works projects (Sintomer et al 2008).
[170] Assuming that social entrepreneurs could convince citizens to form large enough networks to make this demand credible.

specific and city-specific pyramidal networks. Participatory budgeting, therefore, helps to 'map' the governmental and community spheres. If our assumptions regarding the modularity of pyramidal networks is correct, then the various networks that constitute this landscape might be merged into a configuration large enough to make a credible social demand for phase-two participatory budgeting.

Of course, we would not expect this process to be unproblematic, especially where local governments were dependent for funds on central governments – who might be ideologically opposed to participatory budgeting or who might withhold funds for political reasons (de Sousa Santos 1998). However, if our assumptions are correct regarding reflexive legitimacy and obtrusiveness, and if citizens were able to form pyramidal networks large enough to be credible, then it seems reasonable that a social demand for participatory budgeting at the local-level might be met over time. The realisation of social equality by means of participatory budgeting, however, might be limited, especially where local budgets were severely constrained.

Thus, in phase-two, we augment the Porto Alegre model with a Community Funds model[171]. In this phase the resources to be allocated are not government funds but derive from a global financial transactions tax (see the next section). We envision, in our model, a per-capita dividend of $100 per global citizen. While phase-one pyramidal budgeting deals with the allocation of the discretionary parts of local government budgets – which may be very small and prone to political manipulation – phase-two pyramidal budgeting is premised on the direct and autonomous allocation of resources by every citizen. For this to be effective, citizens would need to deliberate and reach agreement on the kinds of projects to fund. An ideal outcome of this process would be the development of community-owned infrastructure and resources, specifically renewable energy systems or local agricultural initiatives. In phase-two, then, pyramidal budgeting helps to build out the landscape of pyramidal networks in the community sphere and enables the realisation of social equality by: 1) providing public goods; 2) stimulating local production and consumption; and 3) by setting a precedent for the community-ownership of productive assets.

If our assumptions are correct regarding uniformity and modularity, and if the landscape of pyramidal networks created by phase-one pyramidal budgeting were extensive enough, then an SMU configuration large enough to make a credible social demand for the implementation of the transaction tax might result. In other words, phase-one sets a precedent for pyramidal budgeting in towns and cities across the world, and the modularity of pyramidal networks allow these town-specific

[171] The Community Funds model is based on ringfencing funds and then allowing citizens to *autonomously* and democratically select projects. Moreover, the citizens involved in selecting Community Funds projects often realize those projects themselves (Sintomer et al 2008). This model differs from the Porto Alegre model specifically in the sense that local government officials have no say in how the funds are allocated.

and city-specific networks to form a configuration large enough – in combination with other networks in other spheres – to make a social demand for the tax. The more successful the track record of pyramidal budgeting, and the more extensive the landscape of government-level pyramidal networks, then the more credible that social demand would be. Thus, phase-one of pyramidal budgeting helps to lay a foundation for phase-two.

Phase-three is characterised by the full instantiation of pyramidal budgeting as an "irreversible" public institution (Cabannes 2004), becoming the norm rather than the exception for the allocation of public resources. Moreover, if our assumption is correct that participatory budgeting and pyramidal democracy are complementary processes, then the widescale instantiation of pyramidal budgeting might engender a landscape of formal pyramidal democracies – where top-tier delegates govern with formal authority – at local and even provincial levels. Given this level of legitimacy for both pyramidal democracy and participatory budgeting, it might become possible to implement pyramidal budgeting at the level of the nation-state, thereby fully democratising the allocation of public resources. If this were the case, then the legitimacy of pyramidal networks might be sufficient to make social demands related to the phase-three instantiation of the other components.

Participatory budgeting is thus the lynchpin of our model of a democratised economy: helping to build out the landscape of pyramidal networks, setting precedents for the democratic allocation of resources, and driving the transition towards formal pyramidal democracy. Moreover, participatory budgeting, under ideal circumstances, enhances transparency and government performance and is inclusive, deliberative, redistributive, and self-regulating (de Sousa Santos 1998; Goldfrank 2007; Wampler 2007)[172]. In short, participatory budgeting leads to social innovation, social justice, an "open democratic state" (Novy and Leubolt 2005) and is a mechanism for "empowered participatory governance" (Fung and Wright 2003). Hence, its importance for the realization of social equality.

8.4.2 Redistributive Fee-and-Dividend Taxes

Fee-and-dividend taxes are the workhorses of our model of a democratised economy. By fee-and-dividend we mean that the revenues derived from the tax are returned directly to citizens – either directly or by allocation via pyramidal budgeting – and are thus ring-fenced from government budgets or political oversight. We suggest the implementation of three different types of fee-and-dividend taxes: a carbon tax, a financial transaction tax, and a capital tax. In phase-one, the carbon tax drives a transition towards low carbon energy systems, as well as setting a precedent for the implementation of further fee-and-dividend taxes. In phase-two, the revenue from these further taxes funds the

[172] The process is redistributive because more money is allocated to projects in poor areas, and self-regulating because, over time, citizens themselves help to define the rules that constitute the process as a whole.

provision of public goods and community-owned assets at the local level. In phase-three, once some threshold of community-owned infrastructure were in place, the taxes might fund part of a universal basic income. Each tax thus relates to a specific phase: the carbon tax to phase-one, the financial transaction tax to phase-two, the capital tax to phase-three.

The phase-one tax – a fee-and-dividend carbon tax – is the idea of levying a tax at the wellhead or port of entry on the carbon dioxide per ton of all fossil energy sources, and then redistributing the proceeds from the tax directly to citizens on a monthly and per-capita basis (Hansen 2009a, 2009b, 2015). The tax would increase annually and consistently. Under the current distribution of incomes and lifestyles in the USA, 60% of citizens would make money or break even[173]. A tax gradually rising by $10 per year in the USA, could generate some two million jobs and reduce emissions to 33% below baseline conditions within ten years (Nystrom and Luckow 2014). Similar benefits have already resulted from the revenue-neutral carbon taxes implemented in parts of Canada (Murray and Rivers 2015; Beck et al 2015). The tax is becoming increasingly politically feasible (Komanoff 2017; Levitan 2017), not least due to its "class component" (Angus 2014). In other words, because the proceeds of the tax are returned directly to citizens, it is difficult to claim that it is "just another attack on working class living standards" (ibid).

Thus, the tax is important not only for the incentives it creates and the redistribution it enables, but also for the kinds of stakeholders it creates. The stakeholders of carbon cap-and-trade initiatives are governments, corporations and banks, while the stakeholders of fee-and-dividend initiatives are citizens. This is an important phase-one outcome that sets a *fee-and-dividend precedent* for the implementation of phase-two and phase-three taxes. In a similar vein, the implementation of a fee-and-dividend carbon tax requires a digital financial system where every citizen has access to a bank account. Many other components of a democratised economy also require this system; thus, the carbon tax helps to lay the foundation for the broader democratisation of the economy[174]. Note, however, that the carbon tax does not provide any revenue for participatory budgeting; all proceeds are returned directly to citizens. The fact that every citizen receives the dividend, however, sets a precedent for a universal basic income. Indeed, at high enough levels, a carbon tax would provide enough revenue to provide a reasonable basic income (Howard 2015, 2017).

[173] This is based on a carbon tax of $115 per ton which would generate some $670 billion or some $3000 per year for each legal adult citizen (Hansen 2009a: 209).

[174] The ability to participate in pyramidal budgeting, for example, would require each citizen to be authenticated such that accountability and transparency were maintained. Providing each citizen with some access to banking services is thus a requirement for the broad-based implementation of participatory budgeting.

If our assumptions are correct regarding the modularity of pyramidal networks, then an SMU configuration might be formed, drawing from a variety of networks in all spheres, which would be large enough to make a credible social demand for the implementation of the tax. Moreover, because the tax could be implemented at the level of a single state, or even at the level of a single province, the requisite social demand would be small as compared with that required for the implementation of a global tax. Similarly, the adoption of the tax in one country or region sets a precedent for the adoption of the tax in other countries or regions. Thus, the phase-one implementation of a carbon tax sets a precedent for the implementation of fee-and-dividend taxes more generally.

The phase-two tax is a global fee-and-dividend Tobin tax[175]. A Tobin tax (Tobin 1978, 1996) is a financial transaction tax levied on trades in currency, stocks, bonds and derivatives, usually at a low rate of between 0.01 and 0.5%. Although the intention of the tax is to stabilise the financial system by disincentivising speculation, it would also generate significant revenues of between $200 to $1000 billion per annum. The tax is supported by civil society organisations (Eurobarometer 2011; www.robinhoodtax.org), by professional economists (Stewart 2011), and by notable public figures, including prominent investors and entrepreneurs (CEPR 2013). This level of support indicates the feasibility of creating an SMU configuration large enough to make a credible social demand for the tax.

Whether or not the tax would increase or decrease volatility and liquidity is an unresolved issue (Palley 2003; Dodd 2003; Habermeier and Kirilenko 2003). There is consensus, however, that the tax would be progressive (Palley 2003; Grabel 2003; McCulloch and Pacillo 2011). In terms of technical feasibility, the tax could be implemented at low cost using currently existing financial infrastructure (Hinman 2003; Jetin 2003). Even at low rates of 0.01% a global financial transaction tax on stocks, bonds and derivatives might generate more than $200 billion per annum (Schulmeister 2008). The more successful the tax was at reducing speculation, however, the less revenue it would generate.

As we have outlined in the previous section, a fee-and-dividend Tobin tax would enable the instantiation of a Community Funds model of participatory budgeting, where resources would be allocated autonomously by citizens on a per-capita basis. Assuming a relatively high rate of tax of between 0.5 and 1%, a Tobin tax might generate $100 per global citizen per annum[176]; a significant

[175] Drawing from Keynes (1936), Tobin (1978: 154) advocated for an international financial transaction tax in order to "throw some sand in the wheels" of the "excessively efficient" financial system. The original motivation behind the tax was, therefore, a reduction in short-term speculation, an increase in the stability of the financial system and an increase in the monetary policy autonomy of nations (Hinman 2003).

[176] It is not strictly necessary that all this revenue derive solely from a transactions tax. It might derive from a combination of financial taxes, capital taxes, ecotaxes, or dividends from common global resources. We thus

amount in most parts of the developing world. As Patomäki (2001: 221) notes, however, the true value of the tax is in its potential to create "new democratic constellations". This means, for our purposes, building out the landscape of community-specific pyramidal networks, cementing the precedent of democratically and deliberatively allocating resources, and funding the provision of community-owned infrastructure and capital assets.

If our assumptions are correct about the modularity of networks, and if pyramidal budgeting and fee-and-dividend carbon taxes were to set important precedents, then a transnational SMU configuration might be formed that would be large enough to make a credible social demand for the implementation of such a tax. Given that the implementation of the tax has been described as the "Himalayas" of international politics (Dodd 2003: 28), an SMU configuration large enough to implement the tax would, *inter alia*, help to cement the legitimacy of pyramidal democracy.

The phase-three tax is a global tax on capital[177]. If we follow Piketty's suggestions, the tax would have four features: 1) it would be progressive, being levied only on fortunes exceeding one million euros[178]; 2) it would function as a kind of "cadastral financial survey of the entire world" thus allowing for a mapping of the "global geography of wealth"[179]; 3) it would require high levels of international financial transparency, including the seamless tracking of wealth across national borders; and 4) it might mean taxing corporations at the regional or supranational level and then distributing the proceeds according to the geographic distribution of both sales and wages, resolving the problem of corporate tax avoidance and tax competition.

The key argument against the tax – expressed by both supporters and opponents – is its political feasibility (Cowen 2014; Streek 2014; Galbraith 2014; Patomäki 2014; Milanovich 2014; Auerbach and Hassett 2015). Given the highly unequal distribution of wealth within and between most countries and

use the Tobin tax as a partial proxy for the idea of a global fee-and-dividend tax that would enable global citizens to allocate $100 each.

[177] Piketty (2014) argues that the rate of return on capital has exceeded, for several decades, the rate of growth of output and income. Under these conditions, capitalism "automatically generates arbitrary and unsustainable inequalities that radically undermine the meritocratic values on which democratic societies are based" (1). If democracy is to regain control over globalised financial capitalism, Piketty tells us, then the "ideal tool" would be a "progressive global tax on capital, coupled with a very high level of international financial transparency" (515). This idea is, according to Piketty, utopian and would require an "unrealistic level of international cooperation".

[178] In Europe, this would affect 2.5% of the population and generate 300 billion euros (Piketty 2014: 528). A low tax of say 0.1% could also be levied on all property, simply to ensure that all property becomes registered.

[179] The principle here, Piketty notes, is "quite simple": national tax authorities should receive all the information they need – including information from all other national tax authorities – to calculate the net wealth of every citizen. Thus, the first step to implementing a global tax on capital would be the "automatic transmission of banking data in order to include information on assets held in foreign banks in the precomputed asset statements issued to each taxpayer" (520-1).

acknowledging that the tax would be levied only on the top 2.5% to 10% of the population, however, it seems feasible that substantial support for the tax might be garnered. Again, if our assumption regarding modularity is correct, then it seems feasible that a transnational SMU configuration could be formed that would be large enough to make a credible social demand for the implementation of a capital tax. The successful implementation of this tax, of course, would signal success more generally; i.e. the successful subordination of economic power to social power.

Under the scenario we have laid out in this section, both the carbon and transaction taxes set a precedent for the implementation of the capital tax. The phase-one carbon tax sets a precedent for the fee-and-dividend mechanism. The phase-two financial transactions tax sets a precedent for global financial coordination and lays a foundation for the kind of transparent global banking system that would be required for a global tax on capital. Moreover, because each tax strengthens the case for pyramidal budgeting and extends the landscape of pyramidal networks, so the conditions are gradually created that would favour the implementation of a tax on capital.

When considering the political feasibility of implementing all three taxes, it is useful to draw on Cowen (2014: 164), who notes that the "simple fact" is that "large wealth taxes do not mesh well with the norms and practices required by a successful and prosperous capitalist democracy". We would certainly agree with Cowen on this point, but the issue seems really to be that successful and prosperous capitalist democracies do not mesh well with social equality. If our assumptions are correct regarding the instantiation of pyramidal budgeting, the modularity of pyramidal networks, the effectiveness of obtrusiveness, and the appeal of these taxes to the vast majority of global citizens, then the implementation of the various taxes appears feasible.

All in all, we should heed the succinct analysis of Baker (2003) who argues that transaction taxes – or capital taxes, for that matter – will be enforceable by a government who wants to enforce them, and unenforceable by a government that has no interest in enforcing them. It would be disingenuous, Baker (2003: 106) notes, to "paint a world where major powers are prevented from pursuing tax and financial policies by tiny island nations". If pyramidal democracy can subordinate state power to social power by democratising government, and if transnational SMU configurations can form that would be large enough to transcend the power of any one state, then it may become feasible to implement global redistributive fee-and-dividend taxes.

8.4.3 Universal Basic Income

A universal basic income is the idea of giving every citizen, rich or poor, a regular unconditional cash payment irrespective of whether or not they work. The income should be sufficient for someone to live at a "no-frills respectable economic level" (Wright 2003: 77). The idea goes back to Thomas Paine

(1796) and Joseph Charlier (1848) who suggested that basic income be funded by a tax on land. The idea has also been supported, however, by libertarians like Friedrich Hayek (1973) and Milton Friedman (1962). As we have outlined in previous sections, a universal basic income is the core of our model of a democratised economy. The basic income has no phase-one instantiation, and only a partial phase-two instantiation. As we have previously argued, a maximal basic income requires a maximal stock of humanmade capital, and is located, therefore, at the endpoint of the process of economic democratisation. We develop this point further as we outline the various remaining components of our model.

For conservatives and right-leaning libertarians (Zwolinski 2013), basic income is justified on the basis of: 1) streamlining the welfare state by eliminating all or most welfare programs and redistributing the money saved in the form of a basic income[180]; 2) as a means of making reparations for the injustices of the past[181]; and 3) as a simple and non-paternalistic way of meeting the basic needs of the poor. For left-leaning liberals and libertarians, a basic income is about ensuring basic security and real freedom (Standing 2002; Van Parijs 1995, 2003), enabling democracy and citizenship (Pateman 2003), transforming class relations in capitalist societies (Wright 2003), and stabilising aggregate demand (Standing 2003; Patomäki 2014). On both sides of the political spectrum, a basic income is seen as a means of eliminating "poverty traps"[182], one of the most pernicious problems when it comes to welfare systems. Furthermore, it could be seen as a necessary and, perhaps, inevitable response to the structural technological unemployment that is envisaged to result from the rapid pace of automation in coming decades.

There are several specific perceived benefits of a basic income. First, it is a way to justly compensate for unpaid labour like childcare, eldercare, voluntary work, and work in the home. A basic income could thus help to mitigate gender-based inequalities, although this conclusion has been criticised on feminist grounds (Robeyns 2001). Second, a basic income could increase the bargaining power of organised labour, which might enable progressive forms of corporatism[183] and wage-restraint (Wright

[180] Bergmann (2003) argues, however, that a large welfare state and a basic income are incompatible – from a fiscal perspective – and that a comprehensive welfare state should precede basic income. In this sense, the consolidation of existing programs into basic income would not by itself be a sufficient response to poverty and insecurity. Garfinkle, Huang and Naidich (2003) acknowledge this fact, but calculate that consolidating the majority of welfare supplements into a basic income would be a more effective strategy for alleviating poverty.
[181] As Zwolinski (2013) notes, Nozick's entitlement theory of justice does contain a "principle of rectification" for historical injustices, although Nozick does not expand on this principle. A basic income might be part of a social contract that took historical injustices more fully into account.
[182] Poverty traps refer to the contradiction whereby an unemployed person finds a job but ends up earning little or no extra money due to the loss of their unemployment benefits. Under these conditions, the welfare recipient is essentially faced with up to an 80% marginal tax rate (Standing 2018). This is clearly a disincentive to finding work.
[183] Corporatism is organised bargaining between labour, capital and the state.

2003, 2010). Third, a basic income could allow for wage flexibility and thus increased efficiency, in the sense that employers would have to pay a wage that more closely approximated the relative utility or disutility of a job. No longer would citizens have to perform unsavoury, dangerous, or boring work simply to ensure their own basic security. Fourth, a basic income – considered as a "political birthright" – might help to enhance democracy by enabling autonomy and self-government on the part of citizens (Pateman 2003: 88). For our purposes, a universal basic income is a core component of social equality.

There are two fundamental objections to a basic income. First, that people would stop working and, second, that it would cost too much. When considering a basic income and the incentive to work, we tend to think that others would stop working, but that we, ourselves, would not (Bregman 2014). This intuition, however, is not born out in the empirical evidence. Experiments with basic income suggest that it does not generally disincentivise work[184], but rather generates various positive externalities (Burtless 1986; Hum and Simpson 1993; Forget 2011; Calnitsky 2016). So, although we might expect some changes in labour supply, it does not seem credible to expect that people would simply stop working altogether.

The second key objection to basic income is the cost involved. Who would pay for the scheme? And, if fewer people worked as the result of basic income – which, to some extent, seems inevitable – then, over time, fewer and fewer productive citizens would have to subsidise greater numbers of free-riders. The best response to this objection is found by disaggregating the ideas of money and productive activity, which we do in the following subsection. In brief, a great deal depends on how money is created and who gets to spend it after the fact.

At the core of Keynes's (1936) work, is the observation that money is not simply a measure of some underlying economic activity, but is a social construct that, ideally, needs to be actively managed if aggregate demand is to be sustained and full employment reached. As long as the creation of more money is accompanied by greater productivity, then there is no obstacle to simply creating money in order to generate productivity[185]. Monetary reform – as laid out by Huber and Robertson (2000), for example – is a means by which governments could create money in order to fund a basic income. The idea of monetary reform is sufficiently important that we outline these ideas as a separate component, to which we will return in a moment.

[184] Apart from select groups like young mothers and young adults who tend to prioritise childcare or remain in school longer, rather than entering the job market.
[185] This not a simple or uncontroversial statement. We return to this idea when we examine Investment and monetary reform as a component.

Monetary reform aside, however, a basic income need not be funded strictly by redistributive mechanisms, like taxes, but could also be funded from distributive mechanisms derived from the public ownership of assets (Van Parijs 2003). Sovereign wealth funds, like those of Alaska and Norway, are examples based on the public ownership of oil wealth. Flomenhoft (2012), moreover, shows that even resource-poor provinces or nations could provide a basic income by renting out rather than "giving away" publicly-owned assets[186]. In a similar vein, James Meade (1993, 1994, 1995) has consistently argued that a basic income could be funded by the returns derived from publicly-owned productive assets. The key idea, in these examples, is that funding a basic income requires bringing common resources under social control. If our claims are plausible that pyramidal democracy is a means by which to coherently project social power, then pyramidal democracy may empower citizens to "common" public wealth as the basis for a universal basic income; i.e. make a coherent social demand for subordinating public resources to social control[187]. Pyramidal budgeting helps to set a precedent for such a demand by facilitating the community-ownership of assets.

Although we are more interested in utilising fee-and-dividend taxes for participatory budgeting, these revenue streams might also form the basis for an unconditional income. While an insignificant amount in the developed world, the $100 per person that could be generated by a global Tobin tax would represent a significant boost in income for the billions of global citizens who subsist on only a few dollars per day. Over time, and once participatory budgeting at the local level had built up some threshold of community-owned capital and locally-based employment, then it might be advisable to redirect this revenue to fund a basic income. This would represent, therefore, a phase-two implementation of basic income by means of the redistributive Tobin tax.

In the developed world, on the other hand, a tax on capital could provide part of a basic income. A 2% tax on fortunes exceeding $4 million in USA, for example, would provide $500 billion or $1500 per citizen (Zucman 2014)[188], not an insignificant amount but far less than the income that would be required for a "no-frills respectable" life. This amount could be supplemented, however, by the $4000 per annum for every adult derived from consolidating welfare supplements into a basic income (Garfinkle, Huang and Naidich 2003), and the $2000-$8000 per annum derived, eventually, from a

[186] Doing so would enable Vermont, a state with few natural resources, to provide a basic income of roughly $2000 per year, or $8000 for a family of four. This is roughly equivalent to the Permanent Fund dividends received by Alaskans.

[187] Quilligan (2012: 76-77) envisages a "full-spectrum, commons-based economy" where citizens "across a community of practice or region" take on the responsibility of managing a common resource, formalizing their commitments via social charters or trusts. A transition towards common goods could thus provide the "epistemological and political leverage points" for transforming the global economy (74).

[188] This calculation is reported by Zucman in a tweet but, as Vinik (2014) notes, Zucman is a professor at the University of Berkeley and a frequent collaborator with Piketty.

redistributive carbon tax (Howard 2017)[189]. From these numbers, then, we should see a picture slowly form of how a basic income might be funded from a variety of sources. This would represent, therefore, a phase-three implementation of basic income, with the funding derived from multiple sources including, as we see in the following section, the creation of new money by local or national governments. As may be apparent, however, we have not yet fully substantiated our vision of how to realise a maximal basic income.

8.4.4 Monetary and Investment Reform

In the previous subsection we have provided only a partial answer to the question of how a universal basic income is to be funded. When it comes to the financial system, Davidson (2000) makes the distinction between plumbing solutions and architectural solutions. Funding a basic income through transactions taxes, welfare program consolidation, or additional income taxation, are plumbing solutions which remain premised on an unchanged capitalist 'superstructure'. In this subsection, we examine an architectural solution to the provision of a basic income: monetary and investment reform. In the short to medium-term, monetary reform might provide architectural solutions to achieving full employment – an important aspect of a democratised economy and a transition to post-scarcity. In the long-term, monetary reform might enable a maximal stock of humanmade capital sufficient for the provision of a maximal universal basic income.

Monetary reform comprises various subcomponents operating at various levels of the economy and envisioned to be implemented in different phases: complementary local currencies (phase-one), sovereign national currencies (phase-two), and a denationalised global currency (phase-three). These different currencies relate, moreover, to reforms in investment: the socialization of investment at the local level – by means of a network of community banks – and the balancing of global trade and investment at the international level.

The phase-one type of monetary reform is the broad-based introduction of complementary currencies. Complementary currencies are local or regional currencies that, as the name suggests, operate in conjunction with and do not replace national currencies; they are "agreements within a community to accept something other than legal tender as a means of payment" (Lietaer 2004). Air miles are a tangential example (Lietaer 2012), while the Ithica HOUR – a local currency printed and used exclusively within Ithica, New York – is an archetypal example (Jacob et al 2004).

[189] The dividend from a carbon tax, however, would be expected to shrink over time and thus would not be a sustainable source of revenue, unless, as Howard (2017) notes, it engendered "perverse" incentives and path dependencies.

Complementary currencies are generally built around a "democratic principle of participation" and are thus based on non-profit organisations, grassroot organisations, and "informal groupings of persons" (Blanc 2011: 4). Complementary currencies, therefore, are generally premised more on the development of social capital and the stimulation of local aggregate demand, then on the physical and financial capital of the traditional economy (Lietaer 2001). The more that community currencies become integrated with mutual credit, microfinance, or "other ways of financing long-term assets", however, the more blurred the line becomes between complementary currencies as 'money' and complementary currencies as 'capital' (Schroeder 2018: 4).

Complementary currencies have the potential to help democratise the economy by increasing employment, increasing sustainability, and driving the localisation of production. Although the link between local currencies and sustainability has been described as "utopian socialism" (Dittmer 2013), it remains a common theme in the degrowth and sustainability literature (Kallis, Kirchner and Martinez-Alier 2012; Lietaer et al 2012; Lietaer and Dunne 2013; North 2014). Common problems with the instantiation of complementary currencies, however, are a lack of resources, a lack of information, and a lack of broad-based community support (Seyfang and Longhurst 2013). A currency is far less likely to be adopted, moreover, when local businesses are unable pay their suppliers in that currency (Cato and Suarez 2012). These problems might be resolved by integrating local currencies into local tax systems, making it possible for citizens and firms to pay local taxes in local currencies[190].

For our purposes, pyramidal networks could help to solve problems related to local currency adoption by enabling citizens, businesses and local government to collectively 'troubleshoot' the costs and benefits of adopting such a system. The resources provided by fee-and-dividend taxes and allocated via pyramidal budgeting, moreover, could link national economies with local economies in at least three ways: 1) by backing the exchangeability of the local currency for legal tender; 2) by funding investments in physical capital that enabled local-currency-based economic activity; and 3) by funding the purchase of material resources and inputs that could not be sourced from the local economy. Over time it may become possible, therefore, for local governments to provide some form of universal basic income by means of local currency, especially if local currency networks were to become integrated into the global economy[191]. The issue of funding a universal basic income, then, is less about money

[190] The fact that taxes must be paid in national currencies is a key reason for why and how currencies sustain value (Knapp 1924; Minsky 1986). By integrating local currencies with local government, the same principle could apply. A similar system – a shadow currency based on the tax system – was suggested by Varoufakis (2016a) as a means of keeping the Greek economy functioning without the euro.

[191] As Greco (2012: 234) argues, what we need is "a means of payment that is locally controlled but globally useful". The sharing economy, a component which we outline shortly, could help to integrate local currency networks by enabling goods and services to be traded across borders using such currencies. Moreover, peer-

as a scarce resource, and more about enabling cycles of productivity that help to meet basic needs, provide meaningful work, and develop real productive capacity.

The phase-two type of monetary reform is sovereign money. Contrary to a common-sense understanding, governments do not create the money supply. Instead, the vast majority of the money in the economy is created "out of thin air" by commercial banks (Huber and Robertson 2000; Werner 2014, 2016)[192]. In other words, banks do not borrow from central banks or reallocate the savings of depositors in order to extend credit. In practice they simply create new deposits by adding money – ones and zeroes – to the borrower's account. Commercial banks, therefore, and not central banks, create the majority of new money.

The simple idea behind sovereign money (Huber 2016, 2017) is to revoke this privilege and return it to central banks operating under the control of democratic governments. Whenever commercial banks create money, they create debt. Sovereign money, however, would be debt-free, created as an asset by the state and distributed into the economy by means of public spending or tax rebates and removed via taxation. As Dyson et al (2011) argue, this kind of system – in conjunction with full-reserve banking[193] – would have several key benefits: 1) reductions in public and private debt over time; 2) less inflation; 3) flattened business cycles; 4) fewer financial crises; 5) less asset-price inflation; and 6) more productive investment.

For our purposes, sovereign money is important for three key reasons. First, the creation of money via democratically-controlled central banks presupposes a potential solution as to how a universal basic income could be funded. Creating money would not necessarily increase inflation if the money circulated primarily in the real economy and increased productive investment[194]. In this way,

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to-peer lending – a centrepiece of the sharing economy – opens up the possibility of linking local currency systems with traditional national currencies.

[192] Werner (2014) identifies three theories of how banking relates to the money supply: financial intermediation, fractional banking, and credit creation. The financial intermediation theory posits that banks merely collect deposits from savers and loan that money out to borrowers. The fractional reserve banking theory posits that banks remain, essentially, financial intermediaries but facilitate credit creation by lending more money than they have on reserve. Under this theory, however, it is generally assumed that money creation originates at the central bank and then filters into the financial system via commercial banks. The credit creation theory posits simply that banks create money by extending credit – adding numbers to the borrower's account – and that this process occurs independently of either central bank money or the savings of depositors. Werner (2014) proves empirically that the third theory is the closest match with how money is created in practice.

[193] Full reserve banking means that banks would no longer be able to create money themselves but would have to become intermediaries between central banks/depositors and borrowers. Moreover, banks would be required to separate their transaction functions from their investment functions, meaning they would not be able to lend deposits unless those deposits were earmarked for investment.

[194] As Dyson et al (2011) note, commercial banks already create money without oversight and do so primarily to make profit, the vast majority of which derives from speculative asset investments and not productive investments in the real economy. A core part of this "financialization of capitalism" (Foster 2007; Dore 2008) is

governments might stimulate aggregate demand and productive investment whilst ensuring that the profits of seignorage accrued to the public purse. Second, the centralisation of money creation could allow for some form of "window guidance"[195] where banks would be discouraged from lending for consumption or speculative purposes and encouraged to lend for productive purposes. This would go some way – in conjunction with a basic income – to reversing the financialization of capitalism and moving, in the medium term, towards full employment. Third, sovereign money in conjunction with window guidance might drive investment in physical capital – built-infrastructure and machinery – which would help to reduce the labour-intensity of production over time. This would be important for a transition to shorter work weeks, shared jobs, and a stock of capital sufficient for a maximal basic income. These three aspects of sovereign money, therefore, might help to enable the structural conditions for a universal basic income.

If one were suspicious of centralising the power to create money – as sovereign money requires – it would be possible to achieve similar benefits – in terms of productive investment – by decentralizing banking. Werner (2014, 2016) suggests that banks retain the right to create money but that large commercial banks are replaced by a "network of small, not-for-profit local banks", a model which has been "at the heart of successful German economic performance" for more than 200 years (2014: 18)[196]. Note that a similar idea is at the heart of most other models of a democratised economy (see, for example, Schweickart 1993, 2002). Pyramidal democracy could provide a mechanism by which to ensure the accountability and transparency of a network of local banks, and pyramidal budgeting and fee-and-dividend tax resources might help to fund the establishment of such banks, making them community-owned and community-controlled.

Thus, realising phase-two monetary reform would require a pyramidal network, or an SMU configuration, large enough to make a credible social demand for such reform. As with all other demands, the feasibility of this demand depends on the legitimacy and size of the network as well as the effectiveness of obtrusiveness. However, more than most other social demands, monetary reform directly threatens the superstructure of capitalism – the heart of economic power. To understate the

speculation in property which creates asset bubbles and – due to the fact that most people must borrow in order to purchase a home – leads to a positive feedback loop of money creation and asset price inflation.

[195] Window guidance describes how a government exercises credit control by providing suggestions and guidelines to commercial banks as to which industries and sectors should receive investment. Werner (2003) notes that window guidance enabled Japan to maintain a "war economy" in the decades following the Second World War, albeit one geared towards the production of consumer goods. This tremendously productive and equitable economic system, he asserts, was scuttled by the deliberate creation of asset bubbles. Window guidance has played an important role in the development of the Chinese economy (Fukumoto et al 2010).

[196] Small local banks seldom speculate but are driven rather to invest in productive enterprises with long time horizons.

case, there would likely be significant resistance to this kind of reform. Only time will tell whether such resistance could be overcome by means of pyramidal organisation.

Phase-three monetary reform is that of the international monetary system and the rebalancing of trade and investment. Keynes, influenced by Schumacher (1943), suggested the creation of a global reserve currency and an international clearing union tasked with balancing global trade and investment. Under such a system, countries would be penalized financially for persistently running both surpluses and deficits. The essential feature of Keynes's plan, then, was to disallow surplus countries from sterilizing[197] their surpluses and/or charging punitive rates of interest when lending out their surpluses. Instead, surpluses would be "automatically available as cheap overdraft facilities" by means of an international clearing union (Joshi and Skildelsky 2010). In this way, surplus countries would be incentivised to recycle their surpluses via cross-border investments, and deficit countries would automatically attract the investment required to balance their accounts. The introduction of a global reserve currency – called the Bancor[198] and having semi-fixed exchange rates with national currencies – would both facilitate trade and eliminate counterproductive currency speculation.

The reintroduction of Keynes's plan – partially reimagined by Davidson (2002, 2009) – could help to solve six interrelated problems: 1) volatility and recurrent financial crises; 2) the holding by countries of excessive international reserves, primarily to protect national economies from speculative attacks; 3) dollar hegemony[199] such that developing countries perversely help to finance the military and economic dominance of the USA; 4) unbalanced trade and aggregate demand failure; 5) restricted space for the development of national economic policy; and 6) a lack of funding for growth-unlocking infrastructure projects in the developing world (Monbiot 2003; Bibow 2008; Hudson 2010; Carabelli and Cedrini 2010; Duggan 2013; Lin 2009).

When it comes to conceptualising a social demand for monetary reform at the international level our case for the projection of social power is less firm. It might be argued that the intricacies of global

[197] Sterilization is a macroeconomic term which refers to the actions that a central bank could take to influence the monetary supply effects engendered by a budget surplus or deficit. For example, a central bank might prevent the appreciation of its currency by buying foreign reserves.

[198] The Bancor – not dissimilar to the Special Drawing Rights used by the IMF – would be a unit of account to facilitate global trade and surplus/deficit rebalancing. It would not strictly be a global currency. Although we do not deal with this issue here, the broader process of monetary reform could include the introduction of a single global currency which would resolve exchange rate problems in much the same way as the Bancor (Neuby and Barett 2017). A single global currency, based on a basket of commodities, might be inflation-proof and have important implications for long-term ecological sustainability (Lietaer 2007).

[199] Dollar hegemony speaks to the fact that the dollar is the de facto global reserve currency, with most commodities – oil in particular – priced in dollars. This benefits the USA by allowing it to issue near-unlimited debt without any negative effect on the demand for dollars. This has allowed it to run deficits, fund its military supremacy, and "maintain an international order premised on a Western-dominated economic system" (Zoffer 2012).

trade and investment work against the possibilities of a pyramidal network, or an SMU configuration, arising with sufficient credibility to make such a demand. Moreover, this kind of reform of the superstructure of capitalism would resemble less of a single social demand, and more the result of a sustained global dialogue as to how the global economy should be structured, going forward, in the twenty-first century. Its achievement would thus be a *de facto* vindication of pyramidal democracy as a new organising principle of the global political economy, and we certainly cannot adduce any proof that such an outcome would be possible without extensive empirical testing of the underlying feasibility of pyramidal deliberative networks.

Be this as it may, we wish to briefly recapitulate our previous observation regarding a maximal stock of humanmade capital and the potential for the provision of a maximal basic income. The seminal observation in Keynes's *General Theory* is the "paradox of poverty amidst plenty": that a lack of effective demand can prevent full employment before the supply of labour has been fully utilized. Achieving full employment, according to Keynes (1936), requires restrictions on unproductive speculation and the sustained provision of liquidity for productive investment; i.e. the socialization of investment. The same restrictions and provisions thus apply in "global Keynesianism" which aims to "regulate global interdependencies" in such a way so as to produce "stable and high levels of growth, employment, and welfare for everyone and everywhere, simultaneously" (Patomäki 2014: 56).

Thus, to go further, the underlying prerequisite of balanced global trade and investment is an "international commitment to full employment" (Capling 2010: 182). In other words, all thing being equal, global Keynesianism might force countries to productively invest in one another until full employment had been achieved. Full employment is a requirement for the "third industrial revolution" – the reengineering of the built environment on the basis of automation and smart technologies. Global Keynesianism thus represents the third-phase instantiation of monetary and investment reform that might enable the development of a maximal stock of humanmade capital.

The phase-one and phase-two instantiations of monetary reform – which stand on firmer ground in relation to the social demands necessary for their implementation – might then pave the way for the implementation of global Keynesianism. If complementary currencies can stimulate investment, employment, and aggregate demand at the local level, then a precedent is created for phase-two monetary reform. If sovereign money can similarly stimulate investment, employment, and aggregate demand at the national level, then a precedent is created for phase-three monetary reform. Hence, we have at least some basis for optimism that gradual reform at the local and national level could engender, over time, a more complex social demand for international monetary and investment reform.

In conclusion, the three monetary reforms that we outline in this subsection are a means for potentially overcoming both the scarcity of money and the insufficiency of productive investment, thereby counteracting the "deliberate organisation of scarcity" (Sidelsky 2014) that characterises the logic of capitalism. Localization and increased employment are thus the medium-term goals of monetary reform, while the creation of an abundance of humanmade capital is the long-term goal.

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In this section we have outlined the four base components of a democratised economy: participatory budgeting, redistributive fee-and-dividend taxes, a universal basic income, monetary and investment reform. Each component is instantiated by means of specific social demands, orientated primarily towards local and national government, on one hand, and institutions of global governance, on the other. Moreover, each component is instantiated across three distinct phases with each phase corresponding roughly to a higher level of governmental authority; i.e. local, national, global.

The envisioned outcome of implementing these components is the development of socio-economic institutions whose function is to maintain an economic *floor* sufficient for the provision of all basic human needs. To this end, participatory budgeting, fee-and-dividend taxes, a universal basic income, and monetary reform, are all linked to the development of local investment, production, and consumption. Community-owned and managed assets – renewable energy systems and agricultural initiatives, in particular – are seen as the primary targets for such investment. Over time, then, the components might enable citizens to develop the capacity for providing for their own basic needs. The envisioned endpoint is thus the provision of a universal basic income – derived in part from community-owned socio-economic institutions – sufficient for providing basic security to all citizens.

At the core of this process is overcoming the scarcity of money, and thus overcoming limitations on those productive investments that would iteratively enable citizens to self-develop and self-actualize. Initially, participatory budgeting overcomes this scarcity by linking investment to public goods projects, and, over time, sets a precedent for the broader democratic allocation of resources. Fee-and-dividend taxes provide seed funding for the acceleration of this process, and monetary reform, finally, reengineers the economic system so as to incentivise productive investment in the real economy rather than speculation in unproductive financial assets. As local and national economies increasingly tap their productive potential, and thus rapidly deploy humanmade capital whilst maintaining stocks of natural capital, the provision of a universal basic income becomes increasingly feasible. Hence, the realisation of the four base components might enable the realisation of basic security and social equality.

8.5 The Sphere Components of a Democratised Economy

In this section we outline the two remaining *sphere* components of a democratised economy. While the base components constitute specific social demands orientated towards local, national and global government, the sphere components relate to more general social demands orientated towards firms and communities. In terms of workplace democracy, those social demands relate to worker self-management in the individual firm and to broad stakeholder engagement when it comes to transnational corporations. In terms of the sharing economy, those social demands relate to the democratisation of sharing economy initiatives by means of pyramidal networks, leading to the instantiation of "platform cooperativism" – the socialisation, essentially, of digital platforms such that citizen producers and consumers control the value they create.

The sphere components thus relate primarily to the second requirement of a post-scarcity economic system: developing socio-economic institutions that incrementally raise the economic floor for citizens by providing more goods and services at low or zero marginal cost, or, in other words building out a maximal stock of humanmade and natural capital. In this sense, then, the key role of workplace democracy relates, ultimately, to the subordination of transnational corporations to social control; i.e. enmeshing them in wheel configurations that include management, shareholders, employees, customers, and the communities in which they operate. Given that transnational corporations can be made respondent to such configurations, then they might be incentivised to make those productive investments that would contribute to the abundance of humanmade capital and the maintenance of natural capital.

The key role of the sharing economy component is to provide a viable alternative to the market sphere. Because the sharing economy links producers directly with consumers – by means of digital technologies – it has the potential to rapidly increase efficiency whilst simultaneously providing citizens with more social, creative, and self-directed work. Moreover, the sharing economy might enable seamless processes of peer-to-peer investment that would rapidly accelerate the development of maximal humanmade capital in the developing world, as well as subsidise the conservation of natural capital. Blockchain technologies, moreover, might allow for these processes to be incrementally automated.

The picture that emerges, then, is a world where wage-labour and formal employment in the market-sector slowly give way to peer-to-peer production and consumption and where formal employment becomes more dynamic, variable, and self-directed. The greater the extent to which the base components became implemented, the greater the bargaining power of citizens to reformulate the

conditions of formal employment. Similarly, the greater the extent to which the components were implemented, the more effective, efficient, and attractive peer-to-peer consumption and production may become, and thus the more rapid the development of the sharing economy. Under these conditions it may be possible to develop a maximal stock of humanmade and natural capital, and thus a maximal universal basic income.

8.5.1 Workplace Democracy

For many theorists, workplace democracy[200] is synonymous with economic democracy (Pateman 1970; Dahl 1985; Bowles and Gintis 1993; Archer 1995; Gewirth 1996; Schweickart 1993, 2002; Melman 2001; Foley and Polanyi 2006; Wolff and Barsamian 2012). In our model, however, workplace democracy is more of an end result then it is an enabling condition. When it comes to the base components, for example, we see that their realisation depends on coherent social demands made by means of broad SMU configurations. In this sense, then, one of the key roles of workplace democracy in our model is to help build out the landscape of pyramidal networks by 'mapping' firms and their employees. Once citizens are mapped and become acculturated to pyramidal networks, the reasoning goes, it might be easier to form larger and larger SMU configurations. In this way, the mapping of firms within the market sphere is a key means of generating SMU configurations large enough for the instantiation of the base components.

Thus, while workplace democracy (worker self-management) is the *primary means of realising economic democracy* in most other models, it is not so in our model because pyramidal democracy might enable coherent social demands to be made at all levels of society independently of whether workplace democracy was instantiated or not. This does not mean that workplace democracy plays an unimportant role in our model, just that this role is secondary to that of broad SMU configurations.

Take, for example, a state of affairs where the base components had been partially or fully implemented; i.e. all citizens enjoyed some threshold of basic income and basic security. Under these conditions, workplace democracy would either be a foregone conclusion or would simply be unnecessary: a foregone conclusion because pyramidal democracy would be so well instantiated that

[200] Egels-Zanden and Hyllman (2007: 210) – based on Eaton (1996), Derber (1970), and Bernstein (1976, 1980) – suggest a six-component framework that describes workplace democracy: 1) shared sovereignty over all areas of decision-making; 2) opportunities for direct and indirect participation in decision-making; 3) access to the information and training necessary for responsible decision-making; 4) guaranteed equal rights and respect for the dignity of all individuals; 5) a right to minimum levels of economic, safety, and environmental standards; and 6) the right to a fair share of the economic value created by one's work. Overall, then, these components appear to describe an ideal-type; a utopian vision of what workplace democracy should be. As Klare (1988) argues, however, the choice is not between a purely adversarial model – where owners exploit and ignore workers – and a purely cooperative model – where workers enjoy total control and equality. Achieving economic democracy and economic prosperity, will likely require elements of both (ibid).

it would be unusual for a firm not to be organised on the basis of some threshold of workplace democracy, or unnecessary because, where workplace democracy was not instantiated, workers would be truly free to exit employment without loss of freedom. The realisation of the base components would thus obviate the strict necessity for workplace democracy.

The same reasoning applies when it comes to the largest and most powerful transnational corporations: would it be important who owned those corporations if they were fully subordinated to social control? In other words, if those corporations had been forced to make the productive investments necessary for developing a maximal stock of humanmade and natural capital – and the development of such a stock incrementally increased the purchasing power of all citizens' universal basic income – then it would not matter whether or not the shareholders of those corporations simultaneously became wealthier. So long as basic security and basic opportunity increased linearly for all citizens, then nothing suggests that we should be concerned with the simultaneous production of private wealth[201].

Given these insights, then, what role does the component of workplace democracy play in our model of a democratised economy? First, in phase-one, a transition towards more broad-based workplace democracy – the representation of employees via firm-specific pyramidal networks – helps to increase the total number of pyramidal networks in society. The more extensive the landscape of pyramidal networks, the greater the chance of generating SMU configurations large enough to implement the base components.

Second, in phase-two, and given a landscape of pyramidal networks in all spheres, workplace democracy might enable firm-specific networks to be linked together in sector- and industry-specific configurations. This would enable the formation of integrated labour and trade organisations – at the local, national, and global level – and thus the complete 'mapping' of the commercial and industrial sectors of the global economy. This might, in turn, enable a form of neo-corporatism or social partnership between labour, state and capital[202]. Such a partnership would be necessary for

[201] The real contention here is whether or not public and private wealth can be simultaneously generated when, in the past, private wealth has generally accumulated at the expense of pubic wealth. We would suggest that both forms of wealth can be generated simultaneously by a paradigm-shift away from production systems premised on scarcity and "profitable waste" (Marcuse 1964: 247) and toward circular economies that rapidly increase the total wealth available to society. As Buckminster Fuller (1970: 263) puts it, wealth is "energy compounded with intellects' knowhow". The more energy at our disposal and the more people with the knowledge to deploy it, the wealthier we become. In this sense, nothing should limit the coterminous production of private and public wealth.

[202] As Standing (2002: 14) notes, corporatism – or tripartism – was a "peculiar feature" of the mid-twentieth century, one which worked fairly well when a majority of workers were in stable fulltime industrial wage-labour and where society consisted primarily of large industrial bureaucracies. Over time these structures and the homogeneity of interests changed, on both sides, leading to a "chipping away" of the "feasibility,

developing a maximal stock of humanmade and natural capital, and for mitigating the potentially disruptive effects of the implementation of the base components.

Third, in phase-three, by means of pyramidal networks, it might become possible to subordinate the largest and most powerful transnational corporations (TNCs) to social power by enmeshing them in configurations that included all stakeholders: management, shareholders, employees, customers, and the communities in which they operated. Under these conditions, three possibilities present themselves: 1) collaboration, such that the TNCs coordinated with stakeholders in order to develop a maximal stock of humanmade and natural capital; 2) socialization, such that the TNCs gradually socialised ownership of their equity in order to help fund a universal basic income; and 3) hostile takeover, such that citizens acquired controlling interests in the TNCs by means of purposefully devaluing their stock. We outline each phase in turn.

First, regarding the phase-one role of workplace democracy, if pyramidal networks prove to be an effective means of organising, then we might expect workers to create such networks formally or informally over time. If our assumptions regarding uniformity and reflexive legitimacy are correct, then the adoption of networks in the community and government spheres would increase their adoption in the market sphere. Where they were informal – implemented by workers themselves – then they might be formalised in due course. Where they were formal – implemented by management – they would naturally facilitate a process of codetermination[203]. The base components, by increasing basic security and increasing access to finance, moreover, might enable self-managed firms to compete effectively with non-self-managed firms, thus driving the implementation of workplace democracy and self-management over time.

There are, however, at least two factors that work against the development of firm-specific networks, especially in firms employing large numbers of low or semi-skilled workers. The first is the direct threat of censure or persecution by employers, which might dissuade workers from participating in such networks. The second is an acculturation to powerlessness, a "learned helplessness" (Seligman 1972; Abramson, Seligman and Teasdale 1978), that might limit participation. The first factor relates to direct

functionality, legitimacy and equity" of the tripartist tradition. These changes were accelerated by the fact that "fear changed sides" in the 1970s, with labour giving concessions to owners and managers rather than vice versa (20). Today, therefore, tripartism – which was once the "linchpin of an alternative, redistributive and egalitarian, model of negotiated capitalism" (Baccaro and Howell 2011: 551) – has instead been reshaped to fit the "common imperative" of liberalization.

[203] Co-determination is a phenomenon whereby workers select their own representatives to sit on the board of directors of the firm in question. Despite fears about codetermination leading to the complete socialization of firms (Jensen and Meckling 1979), it has generally resulted in positive, but small, gains in efficiency (Smith, 1991; Fitzroy and Kraft 2005). It does tend, however, to impose costs on owners, especially in the sense that labour generally maximise different objectives – workplace security – over shareholder return (Gorton and Schmid 2004).

and indirect forms of power and the second to ideological power (Lukes 2005). One way of overcoming the first problem is to adapt the design criteria of our bespoke application to accommodate anonymity for all members excepting top-tier delegates. This might help to reduce problems of persecution. Although the second problem is more pernicious, it might become less severe the more that pyramidal networks became commonplace, the more that firms became joined in sector or industry-specific configurations (with the power to sanction non-democratic firms), and the more that the base components began to enhance freedom and wellbeing.

For our purposes, however, the key point is this: the gradual introduction of firm-specific networks either by workers or management – their adoption driven by reflexive legitimacy and uniformity – might help to build out the landscape of pyramidal networks and thus increase the possibility of large SMU configurations. This 'mapping' of the market sphere is an envisioned phase-one outcome that is important for the realization of all other phase-one outcomes. While workplace democracy – especially of the "shop-floor" variety – is undoubtedly important, it is thus not central to our model. SMU configurations large enough to make credible social demands at the state-level and global-level are considered more important than any single firm-specific instantiation of workplace democracy.

In order to expand on this point, we can refer back to section 8.3 where we outlined various provisos and clarifications related to our model of a democratised economy. We argued there that – in contrast to Schweickart's model of Economic Democracy – worker self-management is not the motive force for radical change in our model because pyramidal networks, ostensibly, enable citizens to project sufficient power to modify policy despite the power of vested capitalist interests. Our key argument for rejecting worker self-management as a prerequisite for a democratised economy is that – if citizens became suitably organised so as to make social demands for the four base components, or similar policies – then self-management would not strictly be necessary. Thus, we are not rejecting the need for, or possibility of, worker self-management, but rather suggesting that the broad-based collaboration between labour and capital, that we outline in Phase 2 is a more productive motive force for democratising the economy.

In phase-two, then, we might expect – or seek to facilitate – the formation of three kinds of configuration[204]: 1) industry-specific networks (trade unions and trade organisations); 2) combined industry-specific networks (global trade unions and global trade organisations); and 3) industry-

[204] In terms of the variants of capitalism literature, these kinds of configurations speak to the possibility of strengthening the power of labour and, in doing so, engendering the kinds of collaboration that are the hallmark of coordinated market economies. The key role of workplace democracy, in our model, is the broad-scale representation of labour such that social movement unions can form that would be large enough to make credible social demands for the implementation of the base components.

unspecific networks (labour as a whole). The first kind of network derives from combining all the top-tier delegates from a series of firm-specific networks – in retail banking or automobile manufacturing, for example – into a single industry-specific configuration, with trade unions representing labour and trade organisations representing firms. Although these organisations exist today, pyramidal networks might allow them to operate in a more democratic and decentralised manner. The second kind of network is simply a combination of all industry-specific configurations from all parts of the world, resulting in global-level configurations and – by means of a global trade union – the possible implementation of global labour standards[205]. The third kind of network is a 'meta-trade-union', representing all working classes[206] in all industries and sectors, at either the national or global level. Such a meta-union might facilitate deliberation over changes to the superstructure of the work environment itself: the length of the workweek, universal unemployment insurance, maternity and paternity benefits, citizen sabbaticals, universal healthcare, worker self-management, or the implementation of capital-to-labour redistributive mechanisms[207].

The function of these various types of labour-related networks would be to facilitate a form of neo-corporatism whereby a social bargain might be struck that would help to enable the broader democratisation of the economy. For example, there are fears, on the part of organised labour, that workers would ultimately lose out if a basic income were introduced, primarily due to increased taxation, a dismantled welfare state, decreased union solidarity, or lowered wages (Raventós and Wark 2017). Deliberation and negotiation would be necessary to address these fears and to manage the potentially disruptive effects of the various base components.

[205] Pyramidal democracy could enable a "participatory decentralized-deliberative" approach that could "push debate" about labour standards into the global public sphere (Fung 2003: 1). This could "refashion" the regulatory power of international bodies, increase transparency, and trigger social competition between firms to improve working conditions (2003: 68). Similarly, if workers in the developed world accepted, to some degree, that they had a "political responsibility" (Young 2004) to improve the working conditions of their counterparts in the developing world, then pyramidal democracy could help trade unions to meet such a responsibility. The International Trade Union Confederation already represents some 180 million workers through 340 affiliate organizations. Democratising the ITUC via pyramidal democracy and democratic mechanisms could enhance its legitimacy and effectiveness, laying a foundation for neo-corporatism at the global level.

[206] Standing (2002: 80) suggests a typology of workers – a "new" global stratification – with elites (billionaires) at the top and 'the detached' (the underclass) at the bottom. In between, from most secure to least secure, are what we are referring here to as the 'working classes': proficians, the salariat, core workers, and flexiworkers. Although these classes vary in their education, income and security – they all arguably have an interest in redistributing the surplus controlled by the elite (2002: 201).

[207] We are thinking here of ESOPs (Employee Stock Ownership Plan) and more broad-based mechanisms for the socialization of capital. The Meidner plan, for example, was a Swedish "wage-earner fund" intended to gradually socialize capital by requiring firms to annually issue new equity capital which would be pooled and controlled collectively by labour as a whole (Pontusson and Kuruvilla 1992).

Building a stock of humanmade capital sufficient for a maximal basic income, moreover, would likely entail significant socio-economic disruption, especially if maximal automation were to become a central goal. In this sense, a neo-corporatist process of bargaining and planning would be necessary in order to make a multitude of decisions: 1) deciding which industries to expand or contract; 2) deciding which firms or industries to integrate; 3) deciding on how to distribute employment, especially under conditions where full employment – facilitated by monetary reform, deficit spending and global Keynesianism – were a key objective; 4) restraining wage growth under conditions of full employment; 5) deciding how to reduce employment in lockstep with systematic automation; and 6) deciding how to reconcile existing systems, like pension funds, with the provision of a basic income. In other words – given a grand bargain to develop the humanmade capital sufficient for a maximal basic income – how would the rewards to labour and the returns to capital be allocated in the medium-term?

We certainly cannot provide an answer to this question here. The creation of firm-specific, industry-specific and labour-specific networks, however, might facilitate a process of deliberation and negotiation that would help to find answers over time. This process would begin in phase-two but would likely extend far beyond phase-three. Such a process, moreover, would likely engender a multitude of social demands from a multitude of directions that may end up being mutually exclusive. In other words, there is no guarantee that a social bargain could be struck that would result in the creation of a maximal stock of capital. A landscape of pyramidal networks in all three spheres – market, government, and civil society – is, however, a necessary condition for striking such a bargain.

The third – or phase-three – function of workplace democracy is closely related to the second. The success of any state-level or global-level neo-corporatism depends ultimately on whether or not the core of the global economy – the largest transnational corporations (TNCs) – can be successfully subordinated to social power. By this we that these TNCs (their management and shareholders) can be forced – by means of the obtrusiveness of large SMU configurations – to enter into dialogue with their stakeholders: their employees, their customers, and the communities in which they operate. The function of this dialogue would be to facilitate the democratisation of the economy and the creation of a maximal stock of capital. In order to outline the possibilities for subordinating TNCs to social power in this way, we first outline what we mean by the core of the global economy.

Vitali, Glattfelder and Battiston (2011) show that 737 TNCs – with interlocking profiles of ownership and board membership – control 80% of the value in a global network of 43 060 TNCs. Of the top 20 corporations in this group, almost all are banks, insurance companies, hedge funds, or asset management firms (Upbin 2011). This dominant core – or “economic super-entity” (Vitali et al 2011) – is overrepresented in the membership of major business organisations, with implications for the

democratic character of public policy (Compston 2013), especially as the interests of institutional investors – financial return – are often far narrower than the interests of the general public (Azgad-Tromer 2016). This highly concentrated ownership, however, could prove the Achilles heel of elite ownership and control.

Because we can identify the 727 TNCs at the core of the economy, we can also identify the shareholders who own those corporations. It thus becomes possible to identify the institutional investors, asset managers, and individual investors who, in essence, control the global economy. If we can identify them, then they can become points of authority in democratic mechanisms that comprise the stakeholders of those TNCs: their customers, employees, and the communities in which they operate. A specific variation on the pyramidal network – the shareholder pyramidal network (Pivato 2009: 24) – may be useful in further identifying the relevant points of authority.

In a shareholder pyramidal structure, the members of each group at each tier of the pyramid would be determined not by democratic delegation but by thresholds set by share ownership. For example, a firm with 10 billion – 10^9 – issued shares would form a pyramid with ten tiers. An investor owning between 1 and 10 shares with be automatically assigned to a tier-one group, an investor owning between 10 and 100 shares would be automatically assigned to a tier-two group, and so on and so forth. An investor owning more than a billion shares – 10% of the firm – would automatically be a member of the top-tier group, and the top-tier group would automatically form the board of directors. Shareholder voting would thus take place by means of our bespoke application, or some such similar bespoke application.

What we are suggesting here is a standard means of identifying shareholders, engaging them in policy decision-making, and tracking their voting behaviour. We are thus suggesting a means of operationalising, for example, the European Union's Directive 2007/36/EC on shareholders rights, which aims to extend rules on transparency, proxy voting rights, the possibility of electronic participation in general meetings, and on the exercise of cross-border voting rights (EU Directive 2007).

The proposed directive expects institutional investors to develop an "engagement policy" that includes monitoring investee companies, conducting dialogue with them, exercising voting rights, and cooperating with other shareholders (Böckli et al 2015). In short, the directive suggests that institutional investors should articulate a clear policy and strategy for ensuring the long-term health of their investee companies and exercise their voting rights in accordance with such a policy. To this end, the directive suggests that shareholders be generally identifiable and that institutional investors

"inform the public about its portfolio investments, how these investments are aligned to the timeline of its liabilities and how they contribute to medium and long-term performance" (4).

Putting to one side the potential problems this level of transparency and accountability might engender[208], Böckli et al (2015) note that the full identification of shareholders – and their obligation to participate more fully in decision-making, may result in considerable costs: the administrative burden might be "voluminous, expensive, and unlikely to result in more participation from shareholders". Pyramidal shareholder networks might help to solve such problems[209], and thus operationalise the idea of requiring institutional investors to publicly qualify their investment strategies and voting behaviour.

The adoption of such a structure might engender several outcomes: 1) it would give small retail investors a voice; 2) it would enhance the transparency and accountability of decision-making; 3) it would allow for institutional investors to be distinguished from retail investors; 4) it would help to reveal cross-ownership in corporations; and 5) it would, most importantly, render corporate pyramidal structures 'modular'; i.e. enable the rapid formation of wheel configurations that included democratic pyramidal networks, on one side, and shareholder pyramidal structures, on the other.

Thus, one way of subordinating the economic core to social power is to work towards the instantiation of shareholder pyramidal structures – either by legislation, primarily targeted at publicly traded corporations, or by social pressure and standards of best practice. Doing so would facilitate the identification of relevant points of authority – institutional investors in particular – and thereby enable corporations to become enmeshed into wheel configurations that included both stakeholders and shareholders. Under such conditions, institutional investors would likely need to develop and justify an engagement policy under conditions of collaboration with non-shareholding stakeholders: employees, communities, customers, and civil society organisations.

Thus, if our general assumptions regarding the efficacy of pyramidal networks are correct, and if suitably large constituent networks of customers, employees, and communities could be assembled, then we might have a recipe for subordinating those corporations that form the core of the global

[208] There are possible contradictions, for example, between aspects of the directive and pre-existing rules related to insider trading and shareholder collaboration. Böckli et al 2015 identify several similar gaps in the proposal, but it is not necessary to go into those problems here.

[209] Although delegate selection in shareholder networks would no longer take place democratically, the functions of the shareholder pyramidal network would remain essentially the same: 1) problems, concerns and suggestions could still originate in any group and be escalated up a chain of delegates, 2) deliberation and the process of compression could still be used to aggregate open-ended preferences; and 3) decision-making might still entail deliberation, but be decided by a final one-share, one-vote show of hands.

economy to some threshold of social control. This enmeshment of TNCs into broad stakeholder configurations therefore suggests three possibilities: collaboration, socialization, or hostile takeover.

Collaboration speaks to the idea of general cooperation between TNCs and stakeholders. If the institutional capacity of TNCs could be successfully harnessed, then social bargains might be struck that were maximally conducive to the democratisation of the economy and the development of a maximal stock of humanmade and natural capital. This would imply the neo-corporatism of phase-two workplace democracy, but at a more global and integrated level.

Socialization speaks to two possibilities: gradually redistributing the equity of the largest TNCs to global citizens in such a way as to fund part of a universal basic income, or socializing *control* over TNCs by means of subordinating third-party institutional investors to social control. The first possibility could be realised by means of ESOPs or Meidner-plan type "wage-earner funds", as we have outlined in a previous footnote. Even if corporations could be enmeshed into configurations – forced to do so due to obtrusiveness – nothing suggests that elites would be amenable to losses of ownership or control. Under such conditions, socialization might be forced by means of stakeholder configurations large enough to make an unignorable social demand for such socialization.

The second possibility relates to subordinating third-party equity-holding firms to social control, and then using those firms to control corporations in the core. Consider, for example, Savitz's (2011) contention that the concentration of power at the core is not problematic because the core is owned predominantly by institutional investors and institutional investors are predominantly owned by the "average person" – due to their owning of pension and investment annuities. Ignoring the fact that most global citizens are disenfranchised from owning any such annuities, or exercising any such control, Savitz's argument highlights the possibility of subordinating TNCs to social power by means of subordinating financial intermediaries to social power[210]. If banks, insurance firms, and pension funds could be subordinated to social power by means of wheel configurations and SMU configurations, then these firms could, in turn, force the corporations at the core of the economy to cooperate in the democratisation of the economy.

[210] Standing (2002: 229) notes, for example, that insurance companies own 75% of the public companies in the UK, giving customers significant potential leverage for restructuring the economy. Similarly, Schweickart (1993: 291) suggests that workers consolidate their pension rights into a single government agency as leverage for implementing workplace democracy. Blackburn (2006) suggests that corporations be forced to set aside profit each year – in the form of equity – and distribute these to social funds designed to supplement pay-as-you go pension systems. The overall message here, then, is that if pension funds and insurance firms can be subordinated to social control, then the underlying firms in which those funds invest can similarly be controlled.

In the event that collaboration or socialization failed, it might be possible for highly-coordinated stakeholder configurations to execute hostile takeovers of large TNCs. Given sovereign money, a network of community-owned banks, and the proceeds from fee-and-dividend taxes, it might be possible for very large configurations – with high levels of organisation and consensus – to coordinate in the systematic capture of controlling stakes in corporations by purchasing equity through the market.

For example, if 70% of global citizens aggregated their Tobin tax dividends (some $500 billion per annum) they might leverage this total in order to draw a loan, at 2% interest, of some $25 trillion. This amount, in turn, could be used to purchase controlling stakes in one third of the world's publicly traded corporations[211]. Given a well-organised campaign of tactical strikes, moreover, this might be achieved without inflating stock values; i.e. purchasing shares at reduced costs as markets respond to a campaign of coordinated disruptions. However extreme this option may be, it underlines the central point: the various components, in combination with well-organised stakeholder configurations, opens up new possibilities for socializing control of the economic core.

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In summary, then, workplace democracy plays three important roles in our model of economic democracy. In phase-one, the building out of a landscape of firm-specific networks facilitates codetermination, worker self-management, and the possibility of the formation of large SMU configurations. In phase-two, industry-specific and labour specific configurations – at the local, national, and global level – might enable a form of neo-corporatism and social partnership important for the creation of a maximal stock of humanmade and natural capital. In phase-three, as part of the neo-corporatist process, large stakeholder configurations might subordinate the economic core – the largest transnational corporations – to social power, either through cooperative dialogue or through the socialization of equity. Workplace democracy thus plays a central role in our model of a democratised economy, but not in a way that most theorists would typically assume.

8.5.2 The Sharing Economy

In this section we outline the sphere component of the collaborative or sharing economy – an economic "fourth sector" which is neither entirely public, nor entirely private, nor entirely non-profit. Key characteristics of the sharing economy are: 1) the peer-to-peer utilization of underused assets; 2)

[211] Based on the market value of all publicly traded shares - $67 trillion (CIA World Fact Book 2015). Interest rates in most of the developed world remain, however, between 0 and 1%. At these low rates, the Tobin tax dividend would be sufficient to leverage a loan that would allow global citizens to purchase controlling stakes in all publicly traded companies, not just one third of them.

an emphasis on access to underlying services rather than on the ownership of goods; and 3) a shift from passive consumption to peer-to-peer production and consumption (Botsman and Rogers 2010; Botsman 2016a, 2016b; Frenken and Schor 2017).

It is this sector that we envisage as one of the primary beneficiaries of the instantiation of the base components of a democratised economy. Take, for example, a state of affairs where the base components had been partially or fully implemented; i.e. all citizens enjoyed some threshold of basic income and basic security. Under these conditions we might see the rapid development of sharing economy initiatives for two key reasons: 1) basic income would provide aggregate demand to accelerate the development of peer-to-peer production and consumption; and 2) basic security would enable citizens to move away from wage-labour and towards more creative, social, and self-directed work. A vigorous and multivariate sharing economy, undergirded by a universal basic income and where the efficiency gains from smart technologies became fully operationalised and equitably distributed, would thus represent a potential terminal endpoint for a democratised economy.

This does not imply the end of the market economy, but rather its incremental and partial replacement by ICT-mediated peer-to-peer economic activity in all sectors where such low-cost intermediation became feasible. In this sense, while the job of the workplace democracy component is to coordinate the third industrial revolution – the reengineering of the built environment on the basis of automation, smart technologies, and the development of a maximal stock of humanmade and natural capital – the role of the sharing economy component is to accelerate the replacement of wage-labour with creative, social, and self-directed work.

In this section, we outline how the various components of a democratised economy might enable the rapid development of the sharing economy. In phase-one, resources allocated by pyramidal budgeting might accelerate the development of sharing economy initiatives at the local level, laying the foundation for social demands related to the implementation of other components. In phase-two, pyramidal networks and SMU configurations might enable the democratic “platform governance” of the largest platform-based initiatives, setting a precedent for the democratic governance of other firms in the economy. In phase-three, platform governance is replaced by “platform cooperativism” – where the control and ownership of the platform-based firm is completely democratised by its users. Platform cooperativism, moreover, sets a precedent for the socialization of corporations at the economic core.

The key role of the base components – and pyramidal democracy more broadly – is thus to overcome some of the key obstacles that the development of the sharing economy has encountered, especially those barriers engendered by the co-optation of sharing economy processes by large corporations.

Our central claim, then, is that combining pyramidal democracies with social economies could enable a "fully socialised sharing sector" (Frenken and Schor 2017: 9) where sharing initiatives were owned and governed by their users. We thus proceed by outlining the various virtues that sharing economies *should* entail, on one hand, and the various obstacles they encounter, on the other.

Sharing economies are widely thought to be ecologically advantageous due to their reduction of overall consumption (Prothero et al 2011), although rebound effects[212] could work against this possibility (Böcker and Meelan 2017; Frenken and Schor 2017). Sharing economies at large scale have been made possible by rapid developments in ICT over the past decade, particularly by reducing the costs of social and economic organisation (Shirky 2008). Low costs for social organisation engendered the phenomenon of "stranger sharing" (Schor 2014), where citizens with no prior connection share, trade, or gift with one another. Sharing economies are potentially "hyperproductive" due to the rapid sharing of innovations, the facilitation of low-cost mutual collaboration at a global scale, and the utilisation of passionate voluntary engagement (Bauwens and Iacomella 2012: 325). Sharing economy initiatives thus have the potential to "outcompete" or "outcollaborate" traditional firms (ibid).

For our purposes, the sharing economy represents a "real utopia" (Wright 2010) – an alternative economic configuration where economic incentive coexists productively with community values, and where voluntarism and altruism are important motivators for the provision of goods and services. In terms of perceived benefits, therefore, the sharing economy: 1) increases efficiency by eliminating intermediation and reducing the "idling capacity" of durable goods and assets; 2) allows workers to make flexible trade-offs between work and leisure; 3) enables increased civic participation; 4) strengthens communities; and 5) provides "experiential" gains to participants, as well as economic and instrumental gains. Under ideal circumstances, then, work in the sharing economy resembles Arendt's ideal type: a self-directed and autonomous activity inseparable from human relationships and communities. Pyramidal budgeting and a basic income might help to subsidise sharing economy initiatives and those who work in the sharing economy. This would represent a shift, then, from inflexible wage-labour based purely on economic incentive to flexible, voluntary, and part-time work based on interest, vocation, and meaningful work.

Despite the emancipatory potential of the sharing economy, however, "true sharing" has increasingly been replaced, over time, by "pseudo-sharing"; the former motivated by social or community values, and the latter motivated by economic gains (Belk 2014a, 2014b). It is estimated that the sharing

[212] As people save money by participating in the sharing economy, or as economies grow due to the redistributive effects of the sharing economy, the extra money saved is likely to be spent back into the economy and thus increase, and not decrease, the total throughput of energy and material. Ecotaxes, however, might prevent this kind of damaging rebound effect by driving sustainable consumption.

economy will be worth some $335 billion by 2025 (PwC 2015) and thus even community-orientated sharing economies are under "isomorphic pressures" to become more commercially-orientated over time (Martin et al 2015). The commercialization of the sharing economy, then, could obviate the emancipatory potential of peer-to-peer exchange.

For example, sharing companies built on ICT platform technologies – like AirBnB and Uber – have quickly become multibillion dollar businesses by "capturing most of the value that independent workers and customers create" (Bauwens and Kostakis 2014, cited in Acquier et al 2017: 5). The asymmetry of power between platform owners and platform workers, therefore, facilitates the siphoning off of wealth from stakeholders to shareholders. This concentration of economic power in the hands of platform owners, according to Kenney and Zysman (2016), might be "even more formidable" than the power of factory owners at the dawn of the industrial revolution.

The sharing economy also leads to a loss of security on the part of workers. In the case of Uber, for example, drivers – who are termed independent contractors – are often not liberated but exploited because they lack the legal protection and benefits enjoyed by those in formal employment (Rogers 2016; Redfearn 2016). Sharing economies based on platforms thus have a tendency to "economise private things", potentially harming social cohesion and disrupting pre-existing social ties (Frenken and Schor 2017: 8). Under the logic of capitalism, then, sharing economies could amplify the "worst excesses" of the dominant economic paradigm, becoming "neoliberalism on steroids" (Morozov 2013).

Our central claim, then, is that combining pyramidal democracies with social economies might enable a "fully socialised sharing sector" (Frenken and Schor 2017: 9) where sharing initiatives were owned and governed by their users, thus reversing the tendency for social economies to be co-opted for private gain. Given the fact that sharing economy initiatives operate in almost every sector of the economy (see Table 3), democratising, socialising, expanding, and integrating these initiatives – by means of pyramidal democracy – is a potential recipe for the peer-to-peer provision of basic goods, and is thus a potential core component in the democratisation of the economy as a whole. Moreover, as we have suggested, a fully realised sharing economy, undergirded by a universal basic income, might be the means by which citizens transition from wage-labour to self-directed work.

In phase-one, the sharing economy is a potential destination for funds allocated by means of pyramidal budgeting. We are particularly interested in sharing initiatives geared towards the provision of basic needs and the generation of positive externalities, like local agricultural initiatives, carsharing initiatives, gifting initiatives, and recycle/repair initiatives. Thus, the greater the number of projects orientated towards community gardening and urban agriculture – as exemplified by Yardsharing.org,

Sharedearth.com, or Fallingfruit.org – the more localised food production could become. The greater the number of projects orientated towards sharing capital goods or collectivising their ownership – exemplified by ZipCar or community energy cooperatives – the lower the overall costs of delivering essential services. The greater the number of projects orientated towards the redistribution, repair, recycling and reuse of durable goods – as exemplified by Freecycle.org, Streetbank.com, or repair cafes[213] – the looser the link becomes between the production of material goods and formal wage-labour. We might imagine, then, the broad-based expansion and integration of the multitude of sharing economy initiatives outlined in Table 3[214].

Our claim here, then, is that the sharing economy is a potential destination for resources allocated by means of pyramidal budgeting. These resources – in conjunction with complementary currencies – could thus cement the sharing economy as an alternative mechanism for production and consumption. This might lay the foundation, in the minds of citizens, for broader alternatives to market-based exchange, thereby facilitating the formation of coherent social demands for the implementation of other phase-two and phase-three base components.

Local chapters of sharing economy initiatives, furthermore, might become spokes in larger wheel configurations – enabling the vertical and horizontal integration of specific sharing economy initiatives across different regions and countries. Pyramidal democracy, therefore, could enable sharing economy initiatives to acquire global footprints whilst retaining their local identities. This implies that the communities that constitute sharing economies could be 'mapped' and thus contribute to the formation of the large SMU configurations that are required for making phase-two and three social demands.

[213] Repair cafes are grassroots organisations where people come together in community workshops to "experiment with, modify, make and fix products" (Charter and Keiller 2014: 3). By means of surveys, Charter and Keiller (2014, 2016), note a rapid increase – a doubling between 2014 and 2016 – in the number of repair cafes.

[214] It is here that blockchain technologies may be particularly important. Recall that blockchains are unalterable ledgers of information and that they enable trustlessness between parties. Blockchains might then help to accelerate the adoption of sharing economy initiatives by enabling the full automation of peer-to-peer financing; i.e. money is lent and paid back on the basis of smart contracts linked to smart property. Recall also that smart contracts in conjunction with smart property, enable DOAs (decentralised autonomous organisations) that are akin to corporations, but are run on the basis of code and rulesets. DOAs might enable the rapid creation of renewable energy collectives and community-owned carsharing initiatives.

An Overview of the Sharing Economy		
Examples	Description	Perceived benefits/costs
Agriculture: Garden sharing, community gardening		
Yardsharing.org, Hyperlocavore.com, Alfrea.com, Sharingbackyards.com, Sharedearth.com, Urbangardenshare.com, Fallingfruit.org, Ripenear.me	Garden sharing and or community gardening – where those with spare land are connected with those who want to plant vegetables or crops. Alternatively, applications to find free fruit or to trade, sell or swap local produce.	Increased health benefits (Wakefield et al 2007), increased environmental and social resilience (Okvat and Zautra 2011), potential strengthening of democratic citizenship and civic participation (Glover, Shinew and Parry 2005), increased social capital (Alaimo, Reischl and Allen 2010)
Finance: peer to peer lending, crowdfunding		
P2P finance: Lendingclub.com, Prosper.com. Zopa.com, Fundable.com, Kiva.org, Lendforpeace.com, Patreon.com. P2P crowdsourcing: Kickstarter.com, Indiegogo.com, Gofundme.com, Razoo.com, Crowdrise.com	Peer-to-peer (P2P) financing where lenders are matched with borrowers, in either a mediated or unmediated format. Includes P2P lending, P2P borrowing, P2P insurance, and P2P investing (crowdfunding). Ranges from for-profit to non-profit. Patreon.com allows patrons to make periodic micro-donations to artists or content producers in order to support their work.	Increased access to credit for borrowers (Berger and Gleisner 2010), visible social links between borrowers help to increase trust on part of lenders (Lin, Prabhala, and Viswanathan 2013), borrowers are incentivised to maintain a good reputation with lenders within P2P networks (Yum, Lee and Chae 2012). P2P investing a viable model for funding renewable energy systems (Branker et al 2011, Lam and Law 2016)
Labour: on-demand work, crowdwork		
Uber.com, Amazon Mechanical Turk, Taskrabbit.com, Upwork.com, Heal.com, Upconsel.com	ICT platforms connect providers (unskilled, semiskilled, or highly skilled) to consumers 'on-demand'. Crowdwork describes a phenomenon where a business can outsource work as a series of micro-tasks – which may be simple or complex	Both risks and opportunities for crowdwork on large and complex distributed projects (Kittur et al 2013), problems related to grey legal area of 'independent contractors' (Prassl and Risak 2015, De Stefano 2015), instability of work and low pay (Berg 2016)
Transport: car-hailing, carsharing, ridesharing		
Uber, Zipcar, Lyft, Blablacar.com, BMW DriveNow	Car-hailing as on-demand point-to-point transport typified by Uber. Carsharing as on-demand car rental typified by Zipcar. Ridesharing as on-demand carpooling typified by Blablacar. We use 'carsharing' as a catch all definition for these phenomena.	Users of carsharing tend to have fewer vehicles with related positive environmental externalities (Clewlow 2016), negative externalities related to tenuous on-demand labour (Rogers 2016, also see panel above)
Built infrastructure: accommodation, workspace		
Airbnb.com, Wimdu, Tripping.com, Homeexchange.com, Couchsurfing.com, Wework.com	Accommodation brokerage: Peer to peer rental of accommodation by matching unused rooms/apartments with those seeking short-term accommodation. Co-working: hiring of work space in shared office utilities, but where no single organisation is based.	Racial discrimination in peer-to-peer rental (Edelman, Luca and Svirsky 2017), potentially more expensive long-term rental (Sheppard and Udell 2016), co-working stimulates innovation and entrepreneurship (Capdevila 2015, Fuzi 2015)
Durable Goods: P2P production and consumption, swap trading, gifting		
Ebay.com, Etsy.com, Cohealo.com, Freecycle.org, Freegle, Streetbank.com	Peer-to-peer production and consumption as facilitated by Ebay and Etsy. Enhanced resource utilization by matching unused capital stock with needs as typified by Cohealo and Streetbank. Gifting economies where goods are circulated for no monetary or expected reciprocal gain as typified by Freecycle.	Potential for beneficial hybrid professional-amateur economies (Luckman 2013), gift-economy participants tend to be more civically engaged (Nelson, Rademacher and Paek 2007)

Table 1: The sharing economy. An overview, broken down by sector. The examples are ordered – left to right – from profit-orientated to non-profit orientated.

In phase-two, pyramidal democracy might enable the democratisation of the digital platforms that facilitate the peer-to-peer exchanges that undergird the sharing economy. Note that many sharing economy initiatives are inseparable from their underlying digital platforms. Consider, for example, Ebay, Uber, and Kickstarter. The Ebay website and app enables the peer-to-peer trading of durable goods. The Uber app enables on-demand taxi services directly between users and drivers. The Kickstarter website enables crowdfunding directly between creators and patrons. In all three cases, the underlying platform facilitates a peer-to-peer exchange: Ebay does not own the goods being traded, Uber does not employ the drivers, and Kickstarter does not decide who gets funding. If pyramidal democracy enables citizens to have some control over the value they create by using these platforms, then it follows that such platforms might be integrated and expanded in ways conducive to the democratisation of the global economy.

Most sharing economy initiatives, therefore, are currently duel-core[215] – premised on two of three principles; i.e. access-platform, platform-community, or community-access. Triple-core initiatives – combining all three principles – are rare: currently only Kiva[216] – with its "utopian business model" (Muñoz and Cohen 2017) – meets these criteria. What we suggest is that pyramidal democracy provides a standardised means of providing the "third core" – community and democratic governance – that is missing from many duel-core sharing initiatives. The creation of deliberative spaces and the provision of a standardised system of representation – intrinsic to pyramidal democracy – provide a means of democratically organising the users and owners of sharing initiatives. Pyramidal democracy, therefore, provides a mechanism for "democratic platform governance" which, in turn, could lead to a "value shift" in the commercial sharing economy (Martin et al 2017: 2). Such a shift would ideally entail the promotion of social and environmental values in addition to the "more instrumental values of the capitalist economy" (ibid).

As an example of this process, consider the idea of a democratically governed Uber, a "favourite call" of activists (Martin et al 2017: 1403). Pyramidal democracy and democratic mechanisms might enable platform governance by connecting all the stakeholders of Uber together within a single deliberative

[215] Acquier et al (2017) identify three possible "cores" to sharing economy initiatives: access, platform, and community. Access economies utilise the idling capacity of underused assets. Platform economies mediate between producers and consumers. Community economies are premised on interaction that is "non-contractual, non-hierarchical or non-monetized", but still orientated towards performing work, exchanging products/services, or facilitating participation (2017: 6). Most initiatives combine two of the three cores. Uber, for example, combines access with platforms, while Wikipedia combines community with platforms.

[216] Kiva.org is a non-profit initiative that provides peer-to-peer loans between individual investors and entrepreneurs, particularly in the developing world. It successfully combines access, community, and platforms.

network: drivers, clients, disrupted industries (taxi drivers), government regulators, and the Uber corporation itself. Each would have a seat at the proverbial table.

Under this scenario, pyramidal structures might then facilitate, first, the selection and mobilisation of participants with differing values, differing levels of engagement, and differing interests in the platform and its objectives[217]. Second, pyramidal structures might help Uber – the platform owner – to "tailor their services to [the] needs and values of specific local communities". Third, pyramidal structures might allow stakeholders to articulate social and environmental values[218] in addition to instrumental values, with the potential effect of influencing each other's policies and activities. These are the three requirements identified by Martin et al (2017) for the successful instantiation of democratic platform governance. The end result might be the rapid integration of car-sharing into the global economy, but in a way that would limit disruption, deemphasise economic gain, and maximise social and environmental gains.

The broad implementation of platform governance in the sharing economy would thus engender two important outcomes: 1) it would help to build out the landscape of pyramidal networks in both the community and market spheres; and 2) it would set a general precedent for the democratic control of firms. Regarding the second outcome, platform-based firms are perfect targets for testing the idea that the stakeholders of a firm can successfully make a social demand for democratic governance. Platform-based firms are particularly vulnerable to such a demand because their value derives almost entirely from their users, and because interactions occur almost entirely via a digital application, making it very difficult to ignore a demand originating from another digital application. If this assumption is correct, and if platform-based firms can be democratised, then a precedent is set for social demands for stakeholder governance in non-platform-based firms; i.e. for codetermination, neo-corporatism, and the socialisation of the economic core.

In phase-three, we move from platform governance to "platform cooperativism" (Scholz 2016; Scholz and Schneider 2016), which seeks to replace profit-based access platforms with models based on shared ownership and democratic control. Phase-three, therefore, is characterised by the socialization of the underlying firm by its stakeholders. Consider again the example of Uber.

[217] Not all users, drivers or community members would be equally interested in the democratic governance of Uber. Delegation via pyramidal democracy provides a seamless means by which to filter out citizens with varying interests and levels of commitment. Democratic mechanisms provide a way to integrate pyramidal networks representing separate parties. Pyramidal democracy thus aligns well with platform governance.
[218] Environmental and sustainability concerns are not strong predictors of participation in sharing economies (Barnes and Mattsson 2016; Hamari et al 2016); i.e. people tend rather to participate for social or instrumental reasons, even when they self-identify with environmental concerns. Platform governance could help to bridge this "attitude-behaviour" gap.

Konczal (2014) advocates for "socializing Uber", noting that a worker collective is the "obvious transition" for the company, as almost all of its capital is owned by its workforce. This can easily be achieved, Ackerman (2015) argues, by enacting a law that only permits ride-sharing by worker-owned firms. Democratic mechanisms and pyramidal democracies – especially formal ones – might then enable drivers to lobby for such a law. Monetary reform and community-based pyramidal budgeting, moreover, might enable drivers and users to simply replace Uber with an identical model – but one which was worker or community-owned. The technology behind Uber is simple to replicate and thus replacing, or displacing, Uber with a democratically-governed version would require only the support of its drivers and users.

Herein lies both the strength and the weakness of platform-based economies: their value is generated almost entirely by their userbase, and their userbase interacts almost entirely by means of easily-replicable technologies. This gives the producers and consumers who comprise the userbase substantial power to control the initiative itself, provided that they had the incentive and capacity to do so. The low transactional costs of organising via pyramidal democracies may go some way towards providing that incentive and capacity.

So, given a civil society composed of pyramidal networks, a governmental system composed of pyramidal democracies, and an investment system characterised by pyramidal budgeting and monetary reform, we might begin to envision a process whereby production and consumption were increasingly facilitated by sharing economy initiatives, and where those initiatives were increasingly governed and owned by citizens themselves. Hence, we can begin to envision the economy as an "open and diverse ecosystem" where the "role of money, egoistic motives, expectations of reciprocity, and sense of community" become "salient principles that can be openly discussed, followed or rejected" (Murrilo et al 2017).

The implementation of platform cooperativism and the potential wholesale displacement of multibillion dollar corporations with democratically owned and managed alternatives, sets an important precedent. If platform-based firms, like Uber, could be socialized in this way, then a strong precedent is set for the socialisation of other non-platform-based firms. We have already suggested, for example, that mapping the stakeholders of the economic core – the largest corporations – is a potential means of controlling those corporations by gradually or strategically socializing their equity. A broad move towards platform cooperativism in the sharing economy would thus set a precedent for the socialisation of equity in the economic sphere more generally.

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In summary, then, the sharing economy has the potential to be a fourth sector of the economy where economic incentives coexist productively with social justice and environmental progress. This is, to some extent, a utopian vision of the global economy, but a vision based on the "real utopias" (Wright 2010) of Wikipedia and Kiva. To recapitulate our claim: the base components of a democratised economy – pyramidal budgeting, fee-and-dividend taxes, a basic income, monetary reform – all lay a firm foundation for the expansion and integration of social economies in a way that distributes their benefits and mitigates their disruptive effects. In phase-one, pyramidal budgeting helps to expand the sharing economy and sets a precedent for non-market-based production and consumption. In phase-two, platform governance sets a precedent for the democratic governance of firms by configurations of stakeholders. In phase-three, platform governance is replaced by platform cooperatavism where ownership and control of firms is socialised by the producers and consumers themselves. By means of the sharing economy, therefore, we can begin to envision an economic sphere that accords with social equality, meaningful work, and a democratic workplace.

8.6 The Summarised Effect of the Components as a Whole

In this section we briefly review and summarise the components as a whole. Of particular importance is how the *interaction* and *interplay* between the components builds out the landscape of pyramidal networks and thus incrementally sets precedents for more coherent and extensive social demands. We thus envisage an overlapping process of democratisation, whereby each of the six components is implemented across three distinct phases. Moreover, phase-one components set precedents or otherwise enable the realisation of phase-two and phase-three components. In Table 4, we have summarised the various components and phases in order to clarify the envisioned sequence.

Component	Phase-one	Phase-two	Phase-three
Participatory budgeting	Creation of a landscape of government-level pyramidal networks; democratic allocation of public resources	Enables an SMU configuration large enough to implement fee-and-dividend taxes; democratic allocation of fee-and-dividend resources	Development of formal pyramidal democracies; participatory budgeting at the level of the nation-state
Fee-and-dividend taxes	Fee-and-dividend carbon tax sets precedent for fee-and-dividend transaction tax	Transaction tax sets precedent for capital tax; transaction tax enables financial transparency	Transaction tax and financial transparency enable a tax on capital
Universal Basic Income	-	Fee-and-dividend transaction taxes provide a basis for a UBI in the developing world; consolidation of welfare programs provide a basis for UBI in developed world	A tax on capital, monetary reform, and deficit spending provide a basis for a UBI sufficient for basic freedom; a maximal stock of humanmade capital provides a basis for a maximal UBI
Monetary Reform	Complementary currencies stimulate local investment, employment, and demand	Sovereign money stimulates national investment, employment, and demand	Global Keynesianism balances international trade and investment

Workplace Democracy	Creation of a landscape of firm-specific pyramidal networks; stimulates creation of worker self-management and worker self-ownership	Enables an SMU configuration large enough to implement fee-and-dividend taxes; enables neo-corporatism suitable for the realisation of full employment	Enables stakeholder governance and socialisation of largest TNCs; a socialised economic core enables the creation of a maximal stock of humanmade capital
Social Economies	Creation of a landscape of community-specific pyramidal networks; sets precedent for non-market-based production and consumption	Enables an SMU configuration large enough to implement fee-and-dividend taxes; platform governance sets precedent for stakeholder governance of TNCs	Platform cooperativism sets precedent for the socialisation of the economic core; UBI enables non-market-based peer-to-peer production and consumption

Table 2: The components of a democratised economy, according to the three phases.

To further summarise the main sequence of overlapping effects:

1) Pyramidal democracy enables the mapping of the market, government, and community spheres, generating a landscape of pyramidal networks.
2) Given an assumption of modularity and shared interest, this landscape of pyramidal networks enables citizens to make social demands – at the local, national, and global level – for the implementation of the base components: participatory budgeting, fee-and-dividend taxes, a basic income, and monetary reform.
3) The base components thus lay a foundation for the realisation of the first requirement of post-scarcity: socio-economic institutions whose function is to maintain an economic *floor* sufficient for the provision of all basic human needs; i.e. a social minimum.
4) Simultaneously, the building out of the landscape of pyramidal networks enables stakeholder configurations large enough to instantiate a form of neo-corporatism whereby social bargains might be struck between capital, labour, and the state. Neo-corporatism helps to mitigate the potentially disruptive effect of the base components and lays a foundation for the mass employment necessary to reengineer the built environment on the basis of automation, smart technologies, and a maximal stock of humanmade and natural capital.
5) As new precedents are set for democratic governance and the democratic allocation of resources, new social demands arise for subordinating the core of the global economy – the largest transnational corporations – to social control. Through collaborative or hostile strategies, the institutional capacity of corporations is harnessed in the provision of a universal basic income and in the development of a maximal stock of humanmade and natural capital. In the medium-term this entails a shift towards full employment, and in the long-term a shift away from formal wage-labour.
6) At the same time, the implementation of the base components accelerates the development of the sharing economy, enabling citizens to make meaningful trade-offs between work and leisure and facilitating a shift away from wage-labour and towards more social, creative, and

self-directed work. The efficiency gains of the sharing economy, engendered by peer-to-peer production and consumption based on smart technologies, help to reduce waste and minimise material and energy throughput for any given threshold of goods and services.

7) A maximal stock of capital is thus developed, first, by harnessing the institutional and productive capacity of the market sphere to develop that stock, and, second, by ensuring that the stock is maximally efficient by emphasising *access* to goods and services rather than ownership. The interaction of the *base* components within the two *sphere* components of workplace democracy and the sharing economy thus help to realise the second requirement of post-scarcity: socio-economic institutions that incrementally raise the economic *floor* for citizens over time by providing more goods and services at low or zero marginal cost; i.e. maximise the social minimum.
8) Each component, moreover, plays a role in ensuring that the global economy is situated within the carrying capacity of the global ecosystem. Carbon taxes – and, by proxy, ecotaxes – incentivise citizens to deploy community-owned and managed renewable energy systems and make social demands for the community-based management of natural resources. Neo-corporatism and the subordination of the economic core to social control enable the development of circular economies and a transition towards reusable, repairable, and recyclable material goods. The sharing economy reduces overall material throughput by reducing the idling capacity of durable goods and assets and by incentivising local agricultural production. The six components, therefore, help to realise the third requirement of post-scarcity: the embedding socio-economic institutions at optimal scale within the global ecosystem, such that the global economy becomes premised on a maximal sustainable flow of energy and material.
9) Each component thus contributes to a shift towards social equality in the medium-term, while the phase-three implementation of all components is envisaged as the endpoint of that shift: the realisation of social equality, meaningful work, basic security, and real freedom.

Thus, we see how pyramidal democracy might facilitate the democratisation of the global economy, the realisation of social equality, and a transition towards post-scarcity. Our objective, however, is not to provide a definitive list of components or suggest that our model is the best or only way to realise social equality or distributive justice. We are concerned, rather, with showing how pyramidal networks enable the underlying social demands to be made. Whether or not those social demands will be effective, realisable, or non-contradictory is something that can only be ascertained in due course and by means of iterative experimentation.

8.7 CONCLUSION

Our objective in this chapter has been to suggest how social equality might be realised by means of pyramidal networks and the democratisation of the global economy. At the core of social equality is the idea of a social minimum – the universal provision of a bundle of resources sufficient to lead a minimally decent life. A social minimum is a necessary requirement for enabling meaningful participation in pyramidal networks and collective decision-making, and thus in the resolution of the interrelated crises of the 21st century. As we have suggested, moreover, a social minimum might enable that threshold of socio-economic organisation necessary for a transition towards post-scarcity. This would involve subordinating economic power to social power in the interests of developing a maximal stock of humanmade and natural capital. Such a stock – especially when access was made maximally efficient by the sharing economy – might be the means of maximising the social minimum. In this sense, the purchasing power of a universal basic income would measure the extent of the transition towards post-scarcity.

Each component thus plays a role in socializing investment, likely the "only means" of securing full employment (Keynes 1936: 376). Full employment and the socialization of investment provide a long-term demand schedule that could energise the trillions of dollars of latent capital that "sloshes" around the global economy because corporations are "too terrified" to make productive investments (Varoufakis 2015). In this sense, the democratisation of the economy is not necessarily premised on redistributing existing wealth, but rather on redistributing *control* over existing wealth and thereby creating new sources of socially-controlled wealth that provide all global citizens with basic security and the capacity for self-actualization.

In this sense, a "symbiotic strategy of emancipatory transformation" (Wright 2010: 361) may be preferable to antagonistic strategies that are based on demands for the usurpation of wealth, or on demands for the wholesale replacement of the capitalist superstructure. A symbiotic strategy, instead, implies the "long-term metamorphosis of social structures and institutions in a democratic egalitarian direction" and is facilitated when "increasing social empowerment can be linked to effective social problem-solving in ways that also serve the interests of elites and dominant classes" (ibid). Although this approach may sound too conciliatory, the point is that cooperation and symbiosis are more likely to engender better outcomes than are confrontation and rupture. The extent to which this preferred outcome is possible, however, is yet to be determined.

All in all, if our assumptions regarding the characteristics of pyramidal networks are correct, and if the aforementioned components represent underlying common interests sufficient for the creation of

large stakeholder configurations, then it might become possible to gradually democratise the economy; i.e. reconcile society with the market in a way that instantiates social equality as a universal birth right. For such configurations to form, a “vital belief in a utopian ideal” is necessary in order for people to imagine social and economic systems beyond the status quo (Wright 1995: ix). Post-scarcity – as embodied in the idea of a maximal stock of humanmade capital and a maximal universal basic income – is the essence of that utopian ideal. In the following chapter we suggest how this utopian ideal might be formed; i.e. how we might create a landscape of pyramidal networks sufficient to begin the process of democratising the global economy.

9. Towards Transition

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9.1 Introduction

In this chapter our objective is to suggest how a transition towards pyramidal democracy might occur. Concomitant to this question, then, are also the questions of how a broader transition to citizen-based global governance, a democratised global economy, and a post-scarcity economic order might be possible. We hope to answer these latter questions indirectly by suggesting three possibilities in which pyramidal networks might become broadly adopted across societies. These three possibilities are transition by feedback, transition by paradigm, and transition by strategy.

By feedback we mean that the instantiation of deliberative networks changes the structure of the flow of information within the community, institution or society in which the network is embedded. If we employ a systems-thinking perspective – and thus see the community, institution or society as a socio-economic system – then we might see how new flows of information might generate new feedback loops across the system as a whole. These feedback loops may then affect other 'leverage points' in the system, like the parameters that define the stocks and flows of the system, or the paradigm from which the goals of the system derive. Our contention, therefore, is that deliberative networks might facilitate a full transition to pyramidal forms of organisation by means of iterative information feedback loops that change other leverage points in the system as a whole.

By transition by paradigm we mean that, if deliberative networks are initially successful in connecting citizen-activists together across the world – by means of broad SMU configurations, for example – then they might use such networks to formulate and promulgate a coherent paradigm for a more equitable and sustainable world. If the vision of the new paradigm were to capture the imagination of global citizens, then the paradigm itself might drive the broad-based adoption of pyramidal democracy. We suggest that redefining the problem of climate change in terms of practical projects – at the household, community, national and global level – might constitute such a paradigm because it

entails the devolution of responsibility and resources down to the individual citizen and community. If a democratised economy provided the resources – and deliberative networks the tools – then a transition towards pyramidal democracy might be accomplished in the course of responding to the problem of climate change.

By transition by strategy we suggest that it may be possible, under the right circumstances, to rapidly instantiate transnational pyramidal networks comprising hundreds of millions of citizens. Drawing on the example of the Berners Street hoax – where, in 1809, Theodore Hook successfully made, within a single day, a little-known house the most famous house in London – we suggest that the modern-day phenomenon of virility could similarly be used to rapidly direct hundreds of millions of citizens to our bespoke application. The key claim is that the tools of the information age – Youtube, Facebook, Twitter, etc – make it feasible to channel the attention of citizens very quickly. Transition by strategy is thus the idea of 'tricking' citizens into forming large transnational pyramidal networks and, in doing so, setting an important precedent for a transition towards the adoption of pyramidal democracy.

Rather than mutually exclusive, the three possibilities are mutually reinforcing. Our claim that deliberative networks instantiate new feedback loops should hold for all cases. Those feedback loops, we suggest, might gradually enable citizens to formulate a coherent and new paradigmatic vision of the global order. If the vision were suitably coherent and attractive, it may be possible for citizens to accumulate the resources and influence such that a rapid transition was achieved by means of the viral marketing of our bespoke application.

Before we continue, we should note a few basic assumptions that undergird the various transitions we outline. First, we assume that our bespoke application has been suitably developed and tested; most likely developed by volunteers in an opensource format, and most likely tested within a network of universities. In this way, we would expect that our assumptions regarding the basic characteristics of pyramidal networks – reflexive legitimacy, obtrusiveness, uniformity, and modularity – had proven accurate to some extent. Second, we assume that our bespoke application has been successfully adopted in a few test environments outside of the university, specifically at the level of the community and the firm. Third, we assume that the bespoke application could be rapidly modified as and when is necessary. Under these conditions, then, we might expect the gradual adoption of our bespoke application over time. The following possibilities speak to why we might expect that adoption to accelerate over time.

9.2 TRANSITION BY FEEDBACK

In this section we outline, from a systems-thinking perspective, how a transition might occur by means of iterative feedback within deliberative networks. Important to our argument is the idea of leverage points: places in a system where small changes can lead to large shifts in the system's behaviour. Meadows (1999) outlines twelve such leverage points, ranging from 'shallow' points – like numbers and buffers – to 'deep' points – like system goals and paradigms. At the core of our argument is the claim that deliberative networks instantiate new information flows within society – a mid-level leverage point – in such a way as to affect all other leverage points by means of consistent feedback loops. In short, then, our argument is that deliberative networks can help to change the paradigm – the most effective leverage point – of those socio-economic systems in which they are deployed. We begin by briefly outlining systems theory and leverage points.

Two characteristics define a system: 1) a system displays properties that are not found when its components parts are evaluated in isolation; and 2) a system results from and consists of the "patterned interactions of its component parts, thereby implying that such interactions provide the boundaries, or at least the boundedness, of the system" (Sartori 1976: 43). A system is thus a bounded collection of parts, the whole of which is greater than the sum of its parts. Feedback loops are the basic operating unit of a system (Meadows 2008: 5), meaning that the outputs of the various parts of the system become inputs for other parts of the system. When individuals interact within socio-economic systems, then everything they do is thus done in "the context of an information-feedback system" (Forrester 1961, cited in Meadows 2008: 25). In other words, the actions we take within a system depend on information we receive from the system, and those actions, in turn, generate new information for other actors.

There are two main types of feedback loops in systems: balancing and reinforcing loops. A balancing loop "opposes whatever direction of change is imposed on the system", while a reinforcing loop "enhances whatever direction of change is imposed on it" (Meadows 2008: 28-31). A thermostat is a good example of a balancing feedback loop: when the temperature gets too low, the heating element is turned on, and when the temperature gets too high, the heating element is turned off. Thus, the thermostat balances the temperature in the system. The melting of permafrost by means of global warming is an example of a reinforcing feedback loop: carbon dioxide in the atmosphere engenders increased radiative forcing and thus increases average temperatures; increased average temperatures melt permafrost and release methane into the atmosphere; and methane increases radiative forcing

and thus quickens the melting of permafrost. Reinforcing feedback loops are thus the source of "growth, explosion, erosion, and collapse in systems" Meadows (1999: 6).

We can think of every institution, every community, and every organisation as a socio-economic system, composed of various interacting parts and driven by balancing and reinforcing information-feedback loops. In this sense, every firm is both a self-enclosed system and a subcomponent in the larger system of the economy. Every province is a subcomponent in the larger system of the state, and every state is a subcomponent in the global system of states. In short, the vast majority of human activity occurs within social, economic, political and environmental systems. The interrelated crises of the 21st century, then, are symptomatic of a systems failure. Specifically, the goals of a single subsystem – the economy – have come to dominate other subsystems at the expense of the goals of the system overall, resulting in a behaviour called suboptimization (Meadows 2008: 85). In other words, because economic growth is the paradigm from which all system goals and subsystems are orientated – and because this orientation is generating systemic failure in all other subsystems, especially the environment – the system as a whole is not only suboptimal, but prone to collapse.

In the event that we wanted to optimise the social-economic-environmental system, we could intervene at various points in the system in order to change feedback loops and thus change the behaviour of the system overall.

Leverage Point	System Characteristics
Numbers: Constants and parameters	Parameters
Buffers: The sizes of stabilising stocks relative to their flows	
Stock-and-Flow Structures: Physical systems and their nodes of intersection	
Delays: The length of time relative to the rates of system changes	Feedbacks
Balancing Feedback Loops: The strength of feedbacks relative to the impacts they are designed to correct	
Reinforcing Feedback Loops: The strength of the gain of driving loops	
Information Flows: The structure of who has access to information	Design
Rules: Constraints, incentives and punishments	
Self-Organisation: The power to add, change, or evolve system structure	
Goals: The purpose or function of the system	Intent
Paradigms: The mindset out of which the system arises	
Transcendence: Transcending paradigms	

Table 3: Leverage points in a system, and their broad system characteristics (Meadows 1999; Abson et al 2017)

In the table above, we have organised Meadows' twelve leverage points from least effective to most effective. The list is "tentative", and its order is "slithery", meaning that there are exceptions to every item that might move it higher or lower in the order depending on the nature of the system in question (Meadows 1999: 9). Abson et al (2017), furthermore, categorise the leverage points by assigning them broad system characteristics: parameters, feedbacks, design and intent.

Parameters are the modifiable, mechanistic characteristics of the system, like tax rates, budgets, or product standards, as well as the physical components of the system, like the sizes of stocks and rates of flow. Parameters are often the target of political intervention because these factors are relatively easy to change. Doing so, however, is often ineffective. As Meadows (1999: 3) argues, "putting different hands on the faucets may change the rates at which the faucets turn, but [if they are turned according to the same old information, goals and rules] the system behaviour isn't going to change much". In this sense, increasing or decreasing the national tax rate is unlikely to lead to fundamental systemic change by itself. Parameters can be particularly important, however, when changing them leads to the 'activation' of leverage points higher up on the list.

Feedbacks, of course, are the information flows between the various components. We have already noted the importance of balancing and reinforcing loops.

Design speaks to the structure of information flow, the rules and constraints of the system, and the capacity of the system for self-organisation. Our key claim is that deliberative networks embody a new structure of information flow, one capable of 'activating' both less-effective leverage points – like tax rates and stocks of infrastructure – and more-effective leverage points – like system goals and paradigm. Moreover, deliberative networks – as a new structure of information flow – enable the changing of rules and constraints by means of social demands. Finally, pyramidal networks enable self-organisation – the capacity of a system to make its own structure more complex (Meadows 2008: 79) – both on the part of citizens within a single network and across society more broadly through wheel and broad configurations. Our key claim, then, is that deliberative networks might intrinsically change the design of systems.

Intent relates to the norms, values and goals of the system, all of which derive from a single paradigm or world-view that orientates the system as a whole. Meadows (1999: 8) argues that paradigms are the "sources of systems" and from them is derived the goals, structure, information, feedback loops, and stocks of systems. Ancient Egyptians, for example, built pyramids because they believed in a particular version of the afterlife. Today, according to Meadows, we continue to build vast industries, often at the expense of natural systems, because we believe that material goods, consumption and

economic growth are system goals that lead to better societies[219]. Changing the paradigm of the system is, therefore, the key to changing all other aspects of the system. More than one paradigm may, however, be in play. Thus, as Abson et al (2017: 32) note, intent is an "emergent property arising from multiple, potentially conflicting, sets of world views, goals and purposive behaviours" within any given system.

In the previous chapter, we outlined the various components of our model of a democratised economy. We can now evaluate the interaction of those components, over different phases, in terms of systems theory and leverage points. First, we should note how every component requires deliberative networks for their instantiation because networks enable self-organisation, and self-organisation enables social demands to be made for interventions at various leverage points. In terms of participatory budgeting at the local level, for example, the demand is for a change to the rules of the system: who gets to allocate resources. This in turn activates leverage points both lower down and higher up on the scale: stocks of local infrastructure increase, delays decrease, self-learning leads to reinforcing feedback loops, and the paradigm of the system, ideally, begins to change from governance-from-above to governance-from-below.

Second, we can see how fee-and-dividend taxes – although intervening at a low leverage point – can activate higher leverage points by engendering self-organisation, modifying system goals, and shifting paradigm. If the same financial transaction taxes were implemented at the same rates, but the revenue flowed to governments rather than citizens, then it seems likely that the taxes would be spent according to the same business-as-usual economic paradigm: building large centralised energy systems, subsidising businesses for renewable investments, promoting growth in the interests of 'sustainable development'. When citizens are given the responsibility of allocating those revenues directly, however, then new feedback loops come into being, leading to a reorganisation of the system according to different system goals. Moreover, the taxes help to dampen a reinforcing feedback loop – success to the successful – by redistributing a portion of the returns to capital.

Third, we can see how monetary reform begins to change directly the rules of the monetary system – its constraints, incentives and punishments. When money is no longer linked to drudgery, material consumption, and debt, but rather to productivity, security and self-actualisation, then citizens and communities might be better able to formulate paradigms and system goals orientated towards the latter, rather than the former, outcomes. Reformed monetary systems, moreover, stimulate the

[219] These assumptions have of course been attacked by many observers, perhaps most viscerally by John Zerzan (1994: 12) who asserts that "The struggle toward a society...in and of the natural world, must be based on an understanding of society today as a monolithic, all-encompassing death march".

sharing economy and, in doing so, weakens an economic paradigm orientated towards ownership and material consumption and strengthens a paradigm orientated towards access and collaborative consumption. The more instantiated the collaborative paradigm becomes, the more that the goals of the system – and all its constituent leverage points – become orientated towards that paradigm.

Finally, the provision of a universal basic income is representative of a new socio-economic paradigm, one that recognises the universal right of all global citizens to a basic level of security. This recognition should ideally be part of a more-encompassing grand narrative, one that sees post-scarcity as a desirable and feasible objective for human civilisation. Under this paradigm, then, the system goals of society become the realisation of a maximal basic income. These goals then lead to self-organisation, rules, and feedback loops designed to maximise the relevant parameters of the system: maximise the stock of human capital, maximise the stock of natural capital, and, thereby, maximise the sustainable flow of material and energy throughput.

Thus, to summarise so far, it might be argued that the contemporary socio-economic system is characterised by a neoliberal paradigm of economic growth. Because, under this paradigm, it is believed that growth – *qua* ever-increasing consumption and production – is the means by which humans are made more prosperous and secure, then all subsequent leverage points – system goals, self-organisation, information structures, feedback loops, and parameters – are orientated towards this end. Because the neoliberal paradigm assumes that humanmade capital is infinitely substitutable for natural capital[220], it is inherently incapable of responding to the ongoing collapse of the subcomponents of the ecological system. The dominance of the economic subsystem thus engenders suboptimality in all other systems, including the social and political systems. Suboptimality perpetuates reinforcing feedback loops that engender negative consequences: tragedy of the commons, success to the successful, policy resistance, drift to low performance, and rule beating (Meadows 2008: 116-137).

A democratised global economy, on the other hand, would be premised on a paradigm of self-actualisation, basic security and self-development. Under this paradigm the system goal becomes the provision of a maximal basic income and, thus, the maximum sustainable throughout of energy and material in the economy. This paradigm, then, is premised on the idea that humanmade capital cannot infinitely substitute for natural capital and, therefore, that the economic, political and social systems are, in fact, subsystems of the global ecological system. If system goals, self-organisation, rules, and feedback loops are orientated towards maximising the parameters of the system – the thinking goes

[220] In other words, under the neoliberal paradigm, it is assumed that the ecological system is a *subcomponent* of the economic system and not vice versa.

– then it becomes possible to provide every human being with basic security, at a minimum, and the freedom and opportunity to fully self-actualise, at a maximum.

Our key claim, then, is that the transition from the first paradigm to the second is made possible by means of systemic interventions at the mid-level leverage point of the structure of information flows. If deliberative networks became broadly adopted across society – in the institutions, communities and organisations that comprise the subsystems of local, national and global society – then information feedback loops between the various components of those systems may become accelerated to such an extent that both lower and higher leverage points become activated. Deliberative networks thus channel information, in new and self-directed ways, between the various components of the systems in which they are embedded. As Meadows (2008: 173) notes, one of the fundamental commandments of systems-thinking is "thou shalt not distort, delay, or withhold information" because you can drive a system "crazy" by "muddying its information streams". On the other hand, you can make a system work better with surprising ease if you give it "more timely, more accurate, [and] more complete information".

Deliberative networks are thus a means by which "intrinsic responsibility" can be built into social, economic, and political systems. Intrinsic responsibility means that the system is designed to "send feedback about the consequences of decision making directly and quickly and compellingly to the decision makers" (179). Intrinsic responsibility is thus about embedding information feedback loops between those who experience the impact of decisions and those who make those decisions. The embedding of such loops would help to engender the three characteristics of highly functional systems: resilience[221], self-organisation, and hierarchy[222]. Deliberative networks enable resilience by enabling self-organisation and interconnection between the component parts of larger systems and enable hierarchies by means of pyramidal tiers and broad configurations. The more that deliberative networks engendered self-organisation and productive hierarchies between decision-takers and decision-makers, the more we might expect such networks to be adopted across society more broadly.

Thus, we suggest that, if deliberative networks successfully enable citizens to intervene at the mid-level leverage point of information flows, and such intervention activated lower and higher leverage

[221] A system is resilient when external shocks do not cause the system to collapse because the individual parts are able to self-organise or re-organise when component parts fail, maintaining the function of the system as a whole. As Meadows (2008: 174) notes, a society that "talks incessantly about 'productivity' but that hardly understands, much less uses, the word 'resilience' is going to become productive and not resilient".

[222] The function of hierarchies is to help the various subsystems of the system do their jobs better. When the lower or higher levels of the hierarchy fail to preform this function, by becoming, for example, orientated towards its own goals, then the system quickly becomes suboptimal. Many systems do not meet goals, therefore, because of "malfunctioning hierarchies" (Meadows 2008: 84).

points, then, by doing so, new information feedback loops would form. While the primary point of intervention is the structure of information flows, then, we would expect pyramidal networks to modify the entire system in due course, as feedback loops activated different leverage points. Over time, then, we would suggest that deliberative networks might facilitate an organic transition from non-pyramidal types of organisation to pyramidal types.

9.3 TRANSITION BY PARADIGM

As we have noted, the most effective leverage point in a system is the paradigm from which it derives. If a paradigm shift can occur, then the goals of the system can be rapidly modified and all subsequent rules, constraints, feedback loops and parameters will similarly be modified. In this section we suggest a paradigm – or a component of a paradigm – that may help to rapidly drive a transition from non-pyramidal to pyramidal types of organisation: a paradigmatic conception of climate change in terms of the climate-energy projects that are necessary for its resolution. We thus suggest that the problem of climate change be conceptualised in terms of 'projects': the hundreds of millions of renewable and low-carbon projects that are needed in every village, town and city across the world. First, we elaborate on the idea of a paradigm. Second, we define the climate-energy problem. Third, we define a 'projects' definition of climate change. Fourth, we suggest how the projects definition may provide a unifying paradigm by which citizens might use deliberative networks to drive the democratisation of the global economy, and thereby drive a transition to pyramidal forms of organisation.

Kuhn (1962: 10), in his seminal work on scientific revolutions, notes that paradigms have two key characteristics. First, they serve to redefine the problems and solutions in a given area of research and are generally based on the revolutionary achievements or insights of one or more individuals. These revolutionary insights thus attract an enduring group of advocates away from "competing modes of scientific activity". Second, the new mode of thinking engendered by the insights are sufficiently open-ended to leave "all sorts of problems" for the new group of adherents to solve. Key examples of paradigm-shifts – scientific revolutions[223] – are thus Copernicus's heliocentric model of the universe, Newton's laws of motion, and Einstein's theory of special relativity. For our purposes we can think of paradigms also in social, cultural, or economic terms, as worldviews or ideologies. A society's paradigm is thus the "shared ideas in the minds of society", the "great big unstated assumptions…or deepest

[223] Kuhn (1962) speaks often of "normal science" and means, by this, research that is "firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice". Compare this to the idea of "post-normal science" (Funtowicz and Ravetz 1993, 1994, 2003) that we mentioned in Chapter 2.

sets of beliefs about how the world works" (Meadows 1999: 8). When an individual or a community changes its paradigm, then we say that a paradigm-shift has occurred.

Paradigm-shifts are relatively rare, not least because those who subscribe to the paradigm are much invested in it. Even when the paradigm fails to solve problems or engenders anomalies that are counter-instances to the predictions of the paradigm, adherents generally do not attempt to change or interrogate the foundations of the paradigm. As Kuhn (1962: 77) notes, once a scientific theory has attained the status of a paradigm, it is declared invalid only if an "alternate candidate is available to take its place". Or, more specifically, a "model is never defeated by facts, however damaging, but only by another model" (Hirschman 1970: 68). In this sense, the dominant economic paradigm is unlikely to change, no matter how frequently its predictions fail, unless another model is available to take its place. Similarly, the equilibrium model of democracy is unlikely to change, no matter how many problems it engenders, unless an alternative model is available to replace it. In this sense, the decision to reject one paradigm is "always simultaneously the decision to accept another" (Kuhn 1962: 77). In what follows we suggest a definition of the climate change problem that may help to instantiate an initial paradigm shift that might, in turn, engender these broader paradigm shifts.

As we noted in Chapter 2, the fact that global warming is occurring and that anthropogenic greenhouse gas emissions are very likely the cause is now "unequivocal" (IPCC 2007: 5). The majority of warming (57%) derives from CO2 emissions via the burning of fossil fuels, 15% through the release of methane from land-use change and from livestock, and 7% from nitrous oxide released as a by-product of nitrogen-based fertilizers (Houghton 2010). In this sense, the short-form version of the climate-energy problem takes the form of three questions: 1) how fossil fuel energy systems can be rapidly replaced with renewable/low carbon systems; 2) how deforestation can be rapidly curtailed; and 3) how sustainable agroecological farming can be rapidly implemented. The descriptor 'rapidly' forms the basis of each question, the argument being that the transition needs to be complete within three decades if we are to stay within a 2 degree rise in average global temperature. The essence of the problem, then is how to transition rapidly. The answer to each question implies a series of *practical projects*, each linked to a specific geographical location and each requiring for its implementation some change in policy, incentives, resources, expert knowledge, and level of stakeholder participation.

If we focus on the most ambitious of these practical projects – the rapid global deployment of renewable energy systems – we find that it necessarily entails hundreds of thousands of constituent practical projects – ranging from the local to the national to the global – and each requiring some change in policy, incentives, resources, expert knowledge, and level of stakeholder participation. In an

analysis of the literature[224] we find that a 100% clean energy infrastructure is technologically feasible[225] and would entail some or all of following components.

1. The deployment of millions of wind turbines and solar energy systems connected together via regional and intercontinental "super grids"
2. Third and fourth generation nuclear energy (depending on the regional feasibility of 100% renewables)
3. Localised smart grids and smart-grid compliant home appliances
4. The near-total replacement of vehicles and transport infrastructure with electric and, possibly in the long-term, hydrogen equivalents
5. Unprecedented societal will to reduce energy consumption by means of increased efficiency
6. The rapid upscaling of new technologies like hydrogen production, especially as a means of grid-level storage
7. The premature retirement of trillions of dollars' worth of energy and capital infrastructure
8. The imposition of carbon taxes and the provision of renewable subsidies
9. Complex energy demand-management systems
10. Extensive changes in end-user mentalities as regards the attractiveness of public transport and walking/biking
11. The subsequent reengineering of city centres and mass transit systems

These requirements thus imply the near-complete reengineering of the built environment, the near-complete replacement of all capital goods, and substantial changes in consumption patterns, all in less than three decades. It is not our objective here, however, to deal specifically with the problem of climate change and the feasibility of a 100% renewable energy system. Our objective is rather to

[224] See Jacobson et al (2013), Jacobson and Delucchi (2011), Jacobson et al (2016), MacKay (2009) on the feasibility of 100% renewable energy. Brook (2009), Gilbraith et al (2013) and Trainer (2012, 2013), and Delucchi and Jacobson (2012), Jenkins (2015) on criticisms on the feasibility of 100% renewable energy. See Bardi (2014), Hertwich et al (2014), Vidal, Goffe and Arndt (2013), Widmer, Martin, and Kimiabeigi (2015) for resource limitations that might affect an energy transition. Bennet (2015), Biello (2015), Greenpeace (2007), Heinrich Böll Foundation (2006), Hansen (2007), Irfan (2015), Jacobson and Brand (2009), Lovins and Sheikh (2008), Qvist and Brook (2015), Schneider (2000), X-Energy (2016) on nuclear transitions. Brand (2009), Martin (2006), Lovins (1977) on suggested energy transitions. Cuéllar-Franca and Azapagic (2015) and the Global CCS institute (2016) on carbon capture and storage.

[225] We should note that a fully 100% clean energy system, although feasible, would be a herculean task. The variability of renewable energy implies the need either for massive overcapacity in all areas (so that sunny or windy areas can supply energy to both themselves and their neighbours) or a breakthrough in grid-level energy storage technology. We should not be beguiled into thinking, therefore, that, just because renewable energy is abundant and unit costs are rapidly dropping, that this makes a transition towards clean energy inevitable, simple, cheap, or free of contradictions.

suggest how certain aspects of the various components can be conceptualised in terms of practical projects of different scales which would require, for their successful implementation, some threshold of subsidiarity – the devolvement of the power and responsibility to implement the projects down to the appropriate level. We can outline those projects as follows:

- **Household-level projects**: energy efficient lightbulbs and appliances, smart-grid compliant appliances, home solar systems, heat pumps, insulation, electric vehicles, water tanks, vegetable gardens
- **Community-level projects**: renewable energy microgrids, small wind farms, car sharing, walking/bike-friendly city design, urban agriculture, food waste recycling
- **State-level projects**: windfarms, solar-PV farms, concentrated solar power plants, geothermal, pumped hydroelectric storage, advanced demand management, next-generation nuclear, reengineering of city centres and mass transit systems, replacement of vehicular transport with electric and hydrogen equivalents, broad-based agroecology
- **Global-level projects**: continental super grids, renewable and hydrogen energy research, massive desert solar arrays

We might then define the problem of global warming, at least initially, in terms of the hundreds of millions of projects – at the local, national and global level – that would be required in order to respond appropriately and timeously to the environmental crises engendered by climate change. We might also immediately see that, if the millions of projects are to be implemented, then socioeconomic systems need to be resilient, self-organising and productively hierarchical[226]. Similarly, we might see how a socioeconomic system with the capacity for implementing projects at the required scale and timeframe would ideally need to be premised on "intrinsic responsibility": the connection of decision-takers with decision-makers in iterative feedback loops such that accurate, timely and complete information formed the basis for the ongoing implementation of projects. We might also see how the implementation of projects requires significant subsidiarity: the devolution of power and resources down to the lowest level at which the climate-energy project can be implemented. Finally, we might suggest that the selection and implementation of projects requires a process of cooperative democratic experimentation and social reconstruction. Thus, we might see how deliberative networks – by instantiating resilience, self-organisation, productive hierarchy, intrinsic responsibility, subsidiarity, and cooperative experimentation – might be a necessary requirement for the implementation of projects at the required scale and in the required timeframe.

[226] Meaning that the various levels of the hierarchy – the system of organisation – are maximally attuned to meeting the goals of the system itself, and not necessarily to the narrow goals of the subsystem.

Moreover, we might see how the various components of a democratised economy align with the implementation of projects. Fee-and-dividend carbon taxes are the means by which household-level projects might be financed or incentivised. Community-based participatory budgeting – in conjunction with fee-and-dividend financial taxes – is the means by which local projects might be democratically selected, resourced, and implemented. State-level pyramidal networks and state-level participatory budgeting are the means by which state-level projects are selected and resourced. Monetary reform is the means by which to employ citizens in the construction and running of projects. A universal basic income, by providing for basic needs, is the means by which to disincentivise citizens from engaging in unsustainable ecological practices[227]. Workplace democracy and the stakeholder governance of corporations are the means by which circular economies – that limit material and energy throughput – can be implemented. Finally, the sharing economy provides a means of peer-to-peer financing and knowledge transfer for the global implementation of projects, as well as a means of rapidly reducing material and energy throughput by emphasising access to goods and services rather than ownership. Thus, we might see how a democratised economy aligns with the implementation of climate-energy projects.

Our key claim in this section, then, is that if the problem of climate change can be broadly reinterpreted in terms of climate-energy projects, then it may become possible to articulate and promulgate a paradigmatic vision of solving climate change primarily at the local and community level, rather than at the national or global level. Rather than the problem being conceived as one of personal responsibility (lowering one's energy consumption) or one of national responsibility (electing politicians who will implement the 'right' solutions), the problem might be conceived in terms of cooperative democratic experimentation. This conception might drive, in turn, the development of peer-to-peer, or community-to-community, interaction that would instantiate co-responsibility for resolving the problem of climate change. The vision we have here then – and the vision that would need to be consolidated, illustrated, and projected into society by means of academics, storytellers, citizens, celebrities, and political entrepreneurs – is one where citizens are given the tools to reengineer their environments on the basis of sustainability, distributed ownership, and environmental stewardship.

If such a paradigmatic vision could be promulgated, we argue, then it might drive the formation of national and transnational pyramidal networks – as well as broad SMU configurations – necessary for making coherent social demands for the democratisation of the global economy. Citizens with a desire

[227] We are referring specifically to citizens in the underdeveloped parts of the world who depend, for their livelihood, on slash-and-burn agriculture or similarly counterproductive economic activity.

to respond to climate change might then drive the adoption of pyramidal democracies[228]. The projects-definition of climate change might then provide a coherent vision, for citizens concerned with sustainability, about how sustainability might be achieved. If the democratisation of the global economy is a necessary condition for sustainability – as we have suggested – then citizens might be incentivised to form transnational pyramidal networks large enough to make social demands for that condition to be met. A paradigmatic vision of how to solve the problem of climate change may then form the basis for a transition to a society organised on the basis of pyramidal networks.

9.4 TRANSITION BY STRATEGY

In this section, we consider the possibility of transitioning by means of strategy. By this we mean how, in practical terms, it might be possible to rapidly form large national and transnational pyramidal networks – virtually overnight – and thus 'force' the instantiation of pyramidal forms of organisation very quickly. Virality is a key concept here[229].

In 1809 in London, drinking in a pub, Theodore Hook made a bet with his friend, Samuel Beazeley, that he could make a nearby house in Berners Street the most famous house in London. The house was owned by the wealthy and respectable Mrs Tottenham, with whom Hook had no connection. Beazeley accepted the bet and Hook subsequently began to hatch his plan: over the course of four or five days he wrote and dispatched thousands of letters, conveying orders to "tradesmen of every sort" for every sort of goods and service and instructing all such orders to be executed on "one particular day, and as nearly as possible at one fixed hour" (Lockhart 1852: 17).

The fateful day began at 5:00 am when one, then three, then five, then twelve chimney sweeps arrived. Soon afterwards, tradesmen began arriving with wagons of coal, barrels of beer, wedding cakes, sides of lamb, and at least a dozen pianos. Doctors arrived to amputate limbs, lawyers to draw up wills, priests to offer prayers, and undertakers to take measurements for coffins. Berners Street soon became clogged with a mass of tradespeople, some trying to come, some trying to go, and some agitating for both an explanation and compensation for their efforts. As the mass of tradespeople grew, so did the crowd of onlookers, further blocking ingress and egress from Berners Street. As word spread throughout London, the streets swelled with passers-by, reporters, policemen, and, finally, the

[228] Recall that global citizens identify climate change as the top global threat (Pew Research 2015b).
[229] We can define virality as "The tendency of an image, video, or piece of information to be circulated rapidly and widely from one Internet user to another; the quality or fact of being viral" (Oxford Dictionary Online).

Governor of the Bank of England and the Duke of Gloucester. Thus, in winning his bet, Theodore Hook succeeded in disrupting an entire city:

> *"A quarter of [London] was disturbed – a whole street thrown into uproar, which lasted from morning till night – hundreds of individuals, servants, artizans, tradesmen, great and small, from all parts of London, professional men of every class, not to speak of princes, potentates, and nobles of high degree, swelled the catalogue of the victims" (Bentley 1849: 72-3).*

We can see how Hook managed to harness the information system of his age – handwritten letters based on false allusions to august persons – in order to engineer one of the largest and most successful practical jokes in history. We can also see how the Berners street hoax managed to go 'viral': the greater the mass of tradesmen, the greater the mass of onlookers, and thus the faster the spread of word, throughout London, of the address '52 Berners Street'. The more that people heard the address, and the more that they heard others mentioning the address, the more curious they became and the greater the incentive to go and see the spectacle for themselves.

For our purposes, then, we might draw from Theodore Hook in order to suggest how virality could be used to rapidly form large national and transnational pyramidal networks. The key idea here is to create a virtual '52 Berners Street' and, by means of a viral marketing strategy, drive hundreds of millions of citizens to our virtual space within a short period of time. If we could then channel their attention towards our bespoke application, whilst simultaneously piquing their curiosity without giving the game away, then we might be able to form a single massive transnational pyramidal network in a relatively short space of time.

For the purposes of illustration, let us assume that a group of citizens – with not inconsiderable resources and connections – were able to, over several months, formulate a plan for making a social demand, at the global level, for the instantiation of a fee-and-dividend financial transaction tax. Assume also that the social demand was well integrated into a coherent manifesto for the democratisation of the global economy, and that the motive force of the manifesto was a projects-based solution to global warming. Assume, furthermore, that our bespoke application was suitably developed so as to allow each participant of a global pyramidal network the ability to allocate resources via a process of e-participatory budgeting. Assume, finally, that a group of wealthy global celebrities[230] had agreed to participate in the endeavour.

[230] Celebrity endorsement of social justice initiatives is now fairly ubiquitous. As Marsh, Hart and Tindall (2010: 337) argue, celebrity politics is "inextricably tied to the later-modern constitution of the public sphere" and is therefore "here to stay". Although celebrity endorsement and advocacy can be a double-edged sword, it is

The 'hoaxers', if we might call them that, might then create a Kickstarter[231] campaign with the proclaimed goal of promulgating a global advertising campaign that would promote the implementation of a fee-and-dividend tax. In order to be maximally provocative, the campaign might be overly vague as to its ultimate objective. Its proximate objective would be, however, to crowdsource ideas from global citizens as to how best to *advertise* the idea of a fee-and-dividend tax. Again, in order to be maximally provocative, the campaign might set as its target for funding the princely sum of $1 billion, and the period of time in which the total funding could be pledged set to a miserly period of just 72 hours. Although the description of the campaign might be vague, it would include, with no description or instructions, a link to our bespoke application.

In order to 'kickstart' the 'hoax' our group of hoaxers might anonymously release a Youtube video, shot in an intentionally-amateurish format by means of a mobile device, showing what appeared to be an informal gathering of our erstwhile global celebrities. The individual who is shooting the video – our host-provocateur – remains off camera and asks each celebrity in turn whether or not they had contributed to the provocateur's Kickstarter campaign. In a casual and uncoordinated sequence, our well-recognisable group of celebrities might admit that they had pledged a million dollars here, or ten million dollars there. No mention is made of the purpose of the campaign. We only get the impression that something very interesting, and very expensive, is happening, and that, if we investigate further, we might find out what that 'something' is.

Given that our Youtube video, itself, quickly goes viral, we would find that we have succeeded in advertising something that advertises itself. We would expect curious citizens to flock to the Kickstarter website in search of the illusive campaign. Facebook might explode with speculation and, all the while, the victims of our 'hoax' would be downloading our bespoke application and finding themselves automatically assigned to a small group of their fellow global citizens, wherein debate and speculation might continue *en masse*. Soon enough, moreover, the global media would begin to report on the phenomenon, anxiously seeking out our celebrities for comment and clarification. The more that our celebrities feigned secrecy, or perhaps gave only cryptic responses, the more curious the world would become.

"too simplistic" to view celebrity involvement in politics as either "democratisation or distraction" (Anderson 2011: 543). Instead, we need only acknowledge that celebrity endorsement is particularly useful for mobilising targeted groups of citizens, rather than setting and stimulating the wider terms of debate (Thrall et al 2008: 381).

[231] Kickstarter is a crowdfunding website where 'creators' outline an artistic, media, or consumer goods project that they are anxious to get funded. They set a threshold target – say $10 000, or $100 000, or a $1 000 000 – and attract individual 'backers' who then pledge various amounts of money to the project. If the project attracts enough funding over a given period of time, then the funds pledged by backers are committed to the project. If not, then backers do not have to provide any funds at all.

At a certain threshold[232], delegates might be automatically selected at all tiers and the users of our bespoke application would be asked to aggregate their ideas on how best to spend the $1 billion in order to implement *an advertising campaign* for a fee-and-dividend transactions tax that would allow every global citizen to allocate $100, in any sequence of denominations, to any number of projects. It is noteworthy that we not asking citizens to weigh in specifically on the feasibility or desirability of the tax itself, but rather on how best to advertise the idea of a transactions tax. Within that idea, of course, is a multitude of compounding questions: Is it a good idea? Is it feasible? How would it work? We might expect, in addition, rampant speculation about the progenitors of the campaign and vociferous argument – from both establishment and non-establishment figures – as to whether the whole idea is feasible and desirable.

The picture that emerges, then, is the possibility of capturing the attention of the world, over a brief period of time, by means of a well-orchestrated viral marketing campaign, and harnessing that attention by means of our bespoke application in order to set a precedent for transnational pyramidal networks comprising hundreds of millions of global citizens. Whether or not the $1 billion is ultimately pledged would be a moot point[233]. We would have succeeded in bringing the world to a grinding halt for a few days and would have set in motion a precedent for a transition from non-pyramidal organisation to pyramidal organisation. Although seemingly fantastical, this thought experiment is no less feasible than Hook's Berners Street hoax.

Our intention is thus to suggest how the tools of the network society – Youtube, Facebook, Twitter, 24-hour news cycles, etc – create the preconditions for transition by means of strategy. Because new ideas can 'go viral', it may be feasible for our bespoke application to do the same. Our thought experiment thus suggests that transition does not necessarily need to be piecemeal: under the right circumstances it would be feasible to form transnational pyramidal networks extremely quickly. If our underlying assumptions about the efficacy of pyramidal democracy are accurate, then it might take just one 'threshold event' to instantiate the transition towards a pyramidal network-based society.

[232] In order to maximise curiosity, it would make sense to make citizens aware, by means of a count-down timer, that 'something' will happen at a certain time. The less citizens know about what that something is the more curious they might become, and the more viral our application will be.

[233] If the $1 billion threshold were not reached then the entire campaign, for all intents and purposes, would have cost its participants nothing. If it were reached then the stage would be set for a global advertising campaign that had, for all intents and purposes, already met its own objectives.

9.5 CONCLUSION

In conclusion, then, we have outlined three possibilities for how a transition towards a pyramidal-network based society might occur. Our most important claim is that, if we employ a systems-thinking perspective, then deliberative networks could change the structure of the flow of information. If this were the case then, by means of feedback loops, we might also expect changes in all the other leverage points of the system in question

If feedback loops, moreover, can lead to the development of a paradigmatic vision of social change, then such a vision might rapidly drive the adoption of pyramidal democracy. Both a citizen-based schema of global governance and a democratised global economy are both examples of paradigmatic visions. Concomitant to these visions, however, might be a projects-definition of climate change. Such a vision – that devolves power, resources and responsibility down to the individual and community level – may be an effective vision by which to drive the adoption of pyramidal democracy. It is a projects-definition of climate change, then, that might justify social demands for the democratisation of the economy.

Finally, if citizens with sufficient resources became convinced of the coherence of this paradigmatic vision, then they might harness the power of virality in order to rapidly form transnational pyramidal networks comprising hundreds of millions of citizens. Such an event would set an immediate precedent for the broad-based adoption of pyramidal networks and the projection of social power at the global-level.

10. Conclusion

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10.1 Overview

In the introduction to this dissertation, we noted two main objectives. First, to outline and defend a model of digital deliberative democracy, called pyramidal democracy, that reconciled deliberative democracy with mass engagement by means of ICT. Second, to show how this model of democracy might enable the democratisation of the global economy, such that every global citizen was provided with greater material security and a greater capacity for self-actualization and self-development. These two objectives were bookended between the twin possibilities of the further entrenchment of the interrelated crises, on the one hand, and the feasibility of a transition towards post-scarcity on the other.

We have hopefully met the first objective by providing a cogent argument for the technological feasibility of reconciling democracy with mass engagement. At the core of that argument is a bespoke application designed to enable the structuration of citizens by means of pyramidal deliberative networks. If compression – or some variant thereof – is a viable means of aggregating the deliberations of citizens, then the reconciliation of deliberative democracy with mass engagement might be feasible. If our assumption is correct that this effectively channels the democratic agency of citizens, then it is feasible that pyramidal structures might enable citizens to project social power and make coherent social demands. If our assumptions, moreover, regarding the characteristics of pyramidal networks – reflexive legitimacy, obtrusiveness, uniformity, modularity – are generally correct, then it follows that citizens might become empowered – by means of broad configurations – to implement or modify national and global policy by means of democratic mechanisms and formal pyramidal democracies. Thus, we claim that pyramidal democracy might reconcile democracy with mass engagement.

We have hopefully met the second objective by outlining how the projection of social power might engender a citizen-based schema of global governance and the implementation of a democratised global economy. Together these would constitute – to some extent – a resolution to the interrelated crises and a transition towards a post-scarcity economic order premised on the provision of some

threshold of basic security for all global citizens. Although we are agnostic regarding the ultimate success of such a transition, we do claim that such a transition is technologically feasible. Whether or not global citizens can generate sufficient willpower and consensus to enact such a transition, is, however, something that only time and experience will tell. We are not suggesting that post-scarcity is inevitable – only that some system akin to pyramidal democracy is a necessary condition for its realisation.

If we return now to the methodologies that underpinned our arguments, we can ascertain also the extent to which these underlying themes relate to pyramidal democracy and a democratised economy. We noted, first, that practical reasoning was a key guiding principle. In this sense, we have not attempted to discover objective truth about the state of the world or about the nature of humankind. We have also tended to avoid direct discussions about the nature of the false consciousness that has so far prevented a transition to post-scarcity.

Instead, we have employed a process of reasoning that weighs the evidence and observable facts about the state of the world and attempted to develop a strategy as to 'what to do' about the problems at hand. We have thus been concerned with the possibility of citizens taking action, and the potential consequences of that action. Pyramidal democracy is thus a blueprint – a rough architectural sketch – for how the interrelated crises might be resolved by means of a new model of democracy. Only time and experimentation will determine whether this blueprint is ultimately valuable or not.

Recall also that our project is premised on philosophical pragmatism: that the world is about processes and relations, that human existence is inherently evolutionary, that a primary function of intellectual activity is problem-solving, and that the means of reconstructing society is found in democratic and educational institutions. Pragmatism is also about antiscepticism and fallibilism: that doubt requires as much justification as belief, that no questions are unanswerable, and that no answers are absolutely true (Campbell 1995: 16). Based on these pragmatist ideals, we might then evaluate the argument of this dissertation, as a whole, in terms of the reactions it might engender.

Drawing on Hirschman's (1991) *The Rhetoric of Reaction*, we might intuit how the ideas of pyramidal democracy and a democratised global economy might be received. Hirschman notes that new ideas for social change are often prone to three reactionary narratives: perversity, futility, and jeopardy. Perversity in the sense that the proposed change is argued to exacerbate, rather than solve, the underlying issue. Futility in the sense that the proposed changes will simply not work. Jeopardy in the sense that the costs of the proposed changes are too high and that they will endanger the valuable achievements of the past. We would intuit that pyramidal democracy will encounter all three of these

reactionary narratives. It will hopefully be the work of future scholars and citizens to respond to these narratives, and hopefully by means of pyramidal networks and cooperative social inquiry.

Simultaneously, however, we need to be wary of progressive narratives that occlude the complexity of social change: synergy, imminent danger, and 'history is on our side'. The synergy illusion speaks to the idea that all reforms are inherently good and self-reinforcing. The narrative of imminent danger speaks to the idea that crises might be used to justify unwarranted or brash social change. The 'history is on our side' narrative runs the danger of isolating society into 'progressives' and 'non-progressives'. Nothing suggests that the democratisation of the global economy and a transition towards post-scarcity is a simple or inevitable procedure. A danger exists that these kinds of narratives might drive the formation of SMU configurations that would be ill-equipped to sufficiently reflect on the potential costs of social change. Instability and disillusionment may then result.

Our pragmatic principles of antiscepticism and fallibilism, however, may help to navigate a safe path between the Scylla of reactionary narrative and the Charybdis of progressive narrative. Successfully doing so is the basis of Dewey's conception of social reconstruction by means of cooperative democratic experimentation. All proposed solutions should be treated as hypotheticals, and thus subjugated to diverse critical appraisal by the stakeholders that would be affected by the proposed social change. Once the problem is collaboratively framed, then one or more proposed solution can be suggested. These solutions are then iteratively implemented as experiments that require continuous testing and ongoing modification. As stakeholders critically engage with the results of experimentation, the problem might be reframed and the solutions reconfigured. Over time, then, more effective solutions would be expected to displace less effective solutions.

In this sense, then, pyramidal democracy is the toolset by which cooperative democratic experimentation might be implemented, and pyramidal networks are the means by which communities might be formed and revitalised at the local level. Recall that the three aspects of community are: 1) association and interaction; 2) interaction on the basis of shared values or common interests; and 3) the partial subordination of the 'I' to the 'We'. If pyramidal democracy can enable such communities, and enable processes of cooperative experimentation, then the stage might be set for the public to "form itself" by means of wedding social inquiry to the "art of full and moving communication" (Dewey 1927: 184).

If such communities can be recombined at the national and global level – into communities of interest and purpose orientated towards solving complex social problems – then it may be possible to transform the Great Society into the Great Community; i.e. to form the global collaborative networks sufficient for the effective solution of global-level social problems. Such a global community might be

well-positioned to “perfect” the “machinery of the machine age” and thus free humankind from toil and domination. Thus, pyramidal democracy might enable the collaborative strategies – at all levels of society – required for resolving the interrelated crises of the 21st century, and thus enable a transition to a post-scarcity economic order.

While pyramidal democracy is embedded in critical theory, we would not claim that it is a fully worked out critical theory, in and of itself. Instead, it forms the primary component of a critical theory: that a transition from the present state of society to some proposed state is objectively and theoretically possible. That proposed state is, first, a world where cooperative democratic experimentation is made possible by means of pyramidal democracy, and, second, a world where all global citizens enjoy basic security and the means of self-actualization and self-development. The toolset of pyramidal democracy, we claim, is eminently practicable and realisable. Whether this toolset is ultimately sufficient for overcoming the interrelated crises is something that only time and experimentation will reveal.

10.2 CAVEATS

In this section we endeavour to outline some caveats to our argument, or, at least, some unresolved or unarticulated problems. We deal with four broad caveats: education, land, sustainability, and authoritarianism.

First, is the issue of intelligence and education. The possibilities for cooperative democratic experimentation relies in many ways on basic assumptions about the capabilities of citizens to engage in deliberation and to weigh the costs and benefits of different possible courses of action. The general state of education within the countries of the world may work against the possibility of effective social change, or, alternatively, engender new forms of cultural or intellectual domination. There is, therefore, a gap in our argument regarding the link between education and pyramidal democracy. Higher levels of education tend to correlate with democracy and political participation (Bobba and Coviello 2006; Castelló-Climent 2007; Glaeser, Ponzetto and Shleifer 2007), and thus suggest that low quality education may work against the feasibility of pyramidal democracy. The extent of this problem, however, will be apparent only in due course.

Second, is the issue of land. Although our model of a democratised economy is premised on the provision of universal basic security, it does not deal specifically with the problem of the ownership of land. In essence, if land continues to be conceived primarily in terms of private property, then any transition towards a post-scarcity economy may be stymied by the concentration of the ownership of

land. In this sense, a universal basic income might simply be swallowed up by an increase in the rent associated with the use of land.

Both Gesell (1918) and Kennedy (1995) suggest that land must necessarily be socialised – become owned by the state or the community – and auctioned directly to citizens, potentially on the basis of long-term timeframes. The proceeds from such auctions would thus accrue directly to the communities linked to the land itself, and the auction price would be linked directly to the relative utility of the land; i.e. its agricultural productivity, the built infrastructure it housed, and its relative desirability based on its location. The key outcome of socialising land in this way would be to reduce its desirability as a speculative asset and as a store of wealth, and thus to unlock its potential as a wealth-generating social institution. We do not speculate here on the possibilities of land reform, but we should note that some kind of reform is a likely requirement for a post-scarcity economic order.

Third, we have dealt inadequately with the third requirement for a transition towards post-scarcity: embedding socio-economic institutions and processes within the carrying capacity of the planet. While we have suggested that a democratised economy lays the foundation for the sustainable throughput of energy and material, we have not fully outlined how this is to occur. The potential for abundance and post-scarcity, as a message, tends to neglect the difference between information abundance and material abundance (Davey et al 2012). While pyramidal democracy has the potential to revolutionise the abundance and productivity of information flows, it does not immediately do the same for the facts of material limitation.

It is possible, in this sense, that post-scarcity is not feasible without a dramatic reduction, at least in the medium-term, in the material and energy throughput of the global economy. In other words, in order for post-scarcity to be feasible in the long-term, it may be necessary for the affluent sections of the global population to dramatically reduce their consumption in the short and medium-term. The extent to which these trade-offs would be acceptable, even under conditions of collaborative social inquiry, are yet to be determined.

Fourth, authoritarianism – or the uneven levels of democracy across the world – may prove an obstacle to the adoption of pyramidal democracy. As we noted in Chapter 6, however, roughly half the global population live in full or flawed[234] democracies (The Economist Intelligence Unit 2018), while the remaining half live in hybrid or authoritarian regimes. Given this distribution, it seems feasible that pyramidal democracy could be adopted, fully or partially, in those countries that already enjoy free elections and freedom of speech. There is thus no clear reason to assume that the existence

[234] Citizens in flawed democracies enjoy civil liberties and free elections, but experience problems related to governance, media freedom, and levels of political participation.

of authoritarian states would prevent the adoption of pyramidal democracy in non-authoritarian states.

What is not clear is how those pyramidal democracies would interact with hybrid and authoritarian regimes – China in particular – especially when it came to global-level policy-making. In this regard, it seems likely that hybrid and authoritarian regimes would be forced to outlaw organisation by means of pyramidal networks, thus leading to a bifurcation of the world into societies where pyramidal democracy was legal and those where it was not. Such bifurcation might quickly become a source of instability within domestic and global politics.

10.3 FURTHER RESEARCH

We would suggest that pyramidal democracy, should it be even partially realised, provides the foundation for a wealth of further research. Key to such research would be the mapping of the potentialities and constraints of a transition to a post-scarcity economic order, specifically the possibilities for developing a maximal stock of humanmade and natural capital.

The immediate direction for further research, however, is the development and testing of our bespoke application. The university environment, in combination perhaps with the open-source software community, would be the primary means of developing such an application. Indeed, the networking-together of all the computer science departments in all universities might be the means and ends of developing our application in a manner conducive to its optimal development and testing. In this way, the pyramidal network might form the basis for an inclusive process of software development that ensured a basic level of interoperability between different software systems, different languages, and different cultural contexts. The global population of university students, moreover, would represent an ideal test-bed for our application.

Given the successful development and testing of our application, it might facilitate the formation of transdisciplinary communities of inquiry: pyramidal networks or wheel configurations comprising networks of scholars associated with specific disciplines. In other words, we might facilitate and structurate the interaction of physicists, economists, statisticians, educationalists, philosophers, and social scientists in such a way as to ascertain the costs and benefits of specific social changes and thus the specific preconditions for post-scarcity.

Such a process would be a key component in enabling processes of social reconstruction: global citizens would require specialists to investigate and then articulate the boundaries that determine whether certain social changes were feasible or unfeasible, desirable or undesirable. It is not that

specialists should make decisions on behalf of citizens, but rather that they should inform citizens as to the relative costs and benefits of different courses of action. The coordination of all universities, all research facilities, all scholars, and all citizens within the relevant communities of practice, is required in order to flesh out the possibilities and constraints of a broad-based transition to post-scarcity. Such an endeavour would likely include every academic discipline and every professional vocation.

In this sense, then, the possibilities for further research are limitless. Taken to its logical conclusion, pyramidal democracy implies an intellectual and social renaissance premised on collaborative global networks that comprise all members of society. While we make no claims related to the outcomes of such a renaissance, we do suggest that pyramidal democracy might enable such a phenomenon.

10.4 THE BRAINBUGS ANALOGY

Let us conclude by means of an extended analogy. In 1957 Arthur C. Clark published *Childhood's End* in which the earth is visited by the Overlords, a race of mysterious aliens. The Overlords – whilst concealing their true identity – instantiate themselves as the benign supervisors of humankind; disbanding all militaries, assuming supervision over all international affairs, and yet allowing humans to more or less conduct their own lives. Humankind, at the expense of its independence and self-directed creativity, enters a golden age of prosperity. Eventually, the Overlords reveal themselves and the novel unfolds, dealing with various insights into the identity and prospects of humankind.

For our purposes, let us suppose a similar occurrence. Note that the following is not an extract from *Childhood's End*, but a piece of original writing inspired by that text:

> A race of techno-biological aliens – nanite-sized and invisible to the human eye – colonise the earth by implanting themselves inside the brains of every human being on the planet. This alien race – the BrainBugs – are constituted as a collective hive-mind and feed, symbiotically, from a very particular source of energy: the self-actualization and creativity of sentient species. The BrainBugs bring no special knowledge or technology with them – but they do have two important abilities: they can control absolutely the actions of their host species, and they can facilitate instant communication amongst all human hosts. Moreover, when they exercise this mind-control, the host remains unaware and unsuspecting; the thoughts that the BrainBugs feed to their human hosts are internalised and accepted as the natural and uncoerced thoughts of the hosts themselves.
>
> The BrainBugs immediately begin – through the actions of their human hosts – the construction of the *fundament*: a global system of processes and infrastructure that would provide each human being with all their physiological needs. The BrainBugs cannot feed themselves, however, as long as they mind-control their human hosts, because self-actualization and creativity cannot stem from a mind-controlled host. Thus, the BrainBugs, in order to survive, must build as quickly as

possible the conditions for a global human civilization capable of sustainable self-actualization, and thus a sustainable symbiotic relationship.

The BrainBugs immediately disband all armies, dismantle all military infrastructures, and dispense with all needless labour; the immediate priority is to house, feed and clothe all human hosts. This task is not difficult – there are no material limitations to providing sufficient nutrition or to building the required infrastructure for survival. In essence, there is no shortage of brick, steel, mortar, concrete or farmland, and, thus, the problem is simply one of optimization for the BrainBugs and their human hosts. Simultaneously, the BrainBugs develop a system of universal education whereby every human being has access to the sum of human knowledge and is invited to master, according to their capabilities and desires, the expertise that is useful to the construction of the *fundament*. The training of doctors, teachers, scientists, engineers and philosophers abounds; all the required expertise to construct and sustain the *fundament* is assembled and deployed.

In conjunction with housing, feeding and clothing each human host, the BrainBugs must also ensure an abundance of electrical energy and the ability of their human hosts to travel across their towns, cities, and continents. A great swath of renewable and nuclear capacity is planned and built, coupled with massive transportation infrastructures, such as to provide each human on the planet with an appropriate supply of energy and transport. All raw materials, all infrastructure, all productive processes, are designed so as to encroach as little as possible on the natural ecosystems of the planet; it would do the BrainBugs no good to destroy the foundation upon which their human hosts depended.

Money and capital – or the bookkeeping and accountancy related to production – is an unnecessary abstraction for the BrainBugs. This is because the construction of the *fundament* is simply a function of labour power and natural resources. The solution to the optimization problem, for them, is thus solved by ascertaining the total requirements for the fundament – all the skills and natural resources required – and then training and deploying the necessary labour and infrastructure to build the *fundament*. Because money and capital are mere proxies for labour, technology and resources, the BrainBugs need not concern themselves with these abstractions.

Because the BrainBugs control their human hosts – and deploy them in order to determine the requisite data for their calculations – they simply use their abilities to facilitate instant communication between all human hosts to accumulate the information necessary to calculate all the requirements for constructing the *fundament* – how many billions of tons of raw materials, how many billions of hours of labour, how many billions of joules of energy, how many billions of work flows – and proceed from there.

As a result of the technological capacity factor of human civilisation – circa 2018 – it takes less than a decade to train and deploy the human labour necessary to build the *fundament*. Moreover, as a function of the natural rate of deterioration of the *fundament* infrastructure, it requires less than 5% of total human productivity to maintain the infrastructure over time. Thus, for the *fundament* to subsist, each human must, on average, dedicate two years of his or her life – in any sequence of commitments – to the maintenance of the *fundament*; be it as a labourer, doctor, teacher, engineer, farmer, or philosopher.

At this point, the BrainBugs have almost expended the stored energy that they have brought with them. They must soon relinquish full consciousness to their hosts and feed, if they are to survive, from the self-actualization and creativity of their human companions. But a danger exists: that, once freed from mind-control, the humans will be utterly disorientated by their new circumstance and, in an atavistic flurry, revert to the hierarchical and oppressive social systems of their recent past. What would happen if elites laid claim to the *fundament* itself, oppresssing and enslaving human individuals by restricting their access to it, thereby propelling them back into a state of engineered scarcity and systematic domination? Those BrainBugs which were unlucky enough to be hosted by repressed and dominated humans would surely perish as a result of being unable to symbiotically feed on the self-actualization and creativity of their companions!

To prevent this, the BrainBugs implement – and acclimatize their hosts to – a system of universal political deliberation and consensus-building. By harnessing the computer networks of their human hosts, the BrainBugs implement a system of pyramidal representation that enables the creation of democratic communities at the local, national, and global level. Each human host becomes gradually acclimatised to a process of deliberation and public reasoning. Each human host becomes acculturated to a process of democratically selecting delegates that represent their considered preferences at the local, national and global level. This system, the BrainBugs surmise, might enable their human hosts to realise ownership over the *fundament* itself, and thus prevent a regress into domination.

To marry political equality with economic equality, each human is given an equal share in the proceeds of the *fundament* and is able to use those proceeds to their own individual ends. Each human is given a casting vote in the direction, mechanisms, and procedures of the social enterprise. Those who are wealthy can pay others, if needed, to provide the two years of life service to the maintenance of the *fundament*. Those who take joy in their occupation might dedicate their lives to such maintenance. Material inequality, for the humans, does not disappear. Those who are endowed with greater incomes, greater inherited wealth, or greater dumb luck, have access to greater material opportunities.

The BrainBugs deduce, however, that – because the *fundament* provides physiological security and a universal standard of dignity for all – that the historical problems of safety, belonging, and esteem will begin to disappear. Freed from the fear and anxiety of vital want, the BrainBugs surmise, their human hosts will embrace their better angels and begin to self-actualize exponentially. In no time at all, moreover, such self-actualization might result in the technological capacity to deliver radical abundance for all humankind; abundance in the sense that material objects would become replicable so easily that the key determinant of happiness would become creativity and individuation within a single harmonious and diverse collective.

With the *fundament* fully operational, with human labour power fully employed in creative endeavours, with a system of universal political deliberation and consensus-building fully in place, the BrainBugs, as a single collective, release control over their human hosts and await, tentatively, their own future.

This analogy is fantastical, of course, yet it helps to elucidate several key premises and contentions that aid us in examining the means and ends of pyramidal democracy. In this sense, we can identify

three primary ideas: 1) the technological feasibility of post-scarcity; 2) the means of its attainment; and 3) the ultimate feasibility of its attainment.

First, our analogy should illustrate the objective technological feasibility of post-scarcity. There are no unsurmountable limitations that prevent a transition to post-scarcity. Humankind has all the resources and knowledge required for constructing a maximal stock of humanmade capital, and, moreover, for maintaining that stock within the carrying capacity of the planet. *No inherent limitations exist*. The limitations that do exist are entirely within the capacity of humankind to control. Whether or not societies can be acculturated to the idea of limiting their consumption so as to engender a maximal stock of humanmade and natural capital, however, is yet to be seen. Pyramidal democracy provides a toolset to make that determination but does not claim to predict a successful outcome.

Second, the BrainBugs analogy suggests the means of realising a post-scarcity economic order. While the BrainBugs have the enviable ability to facilitate universal communication between global citizens and, simultaneously, to supress the socially inherited needs and desires of their hosts, pyramidal democracy enables the *potential* for these outcomes. Collaborative global networks are the means by which universal communication is possible regarding the current status of the stock of humanmade and natural capital. In other words, pyramidal networks *could* provide all the information necessary for calculating the billions of tons of raw materials, the billions of hours of labour, the billions of joules of energy, and the billions of work flows required for a transition towards post-scarcity. Pyramidal networks, however, do not automatically supress the socially inherited needs and desires of citizens, and thus an effective reckoning of the requirements for post-scarcity would not automatically result.

Third, and because pyramidal networks do not automatically assign citizens to those workflows required for building a post-scarcity economic order, these workflows must come about through far *messier* and *indeterminate* processes: deliberation, discussion, experimentation, testing, failure/success, and, eventually, social acceptance of effective solutions. While the BrainBugs must also submit to a similar process of experimentation, they would not have to deal with the repercussions of localised failure or active sabotage on the part of vested interests. Thus, the ultimate feasibility of post-scarcity depends on the thousands of localised battles between communities and vested interests, and on whether or not, ultimately, cooperative democratic experimentation is possible.

The BrainBug analogy thus suggests the ultimate feasibility of post-scarcity, but also that this process is unlikely to be smooth. Perhaps this is where we have the advantage over the BrainBugs: if humankind ultimately endures the journey of social reconstruction, no matter how bumpy, then the end result is likely to enjoy the substantive support of all those global citizens who were along for the

ride. This end result might entail the future birth of generations who take for granted the idea that self-actualization, self-development, and self-directed human activity comprise an appropriate ethos for a global civilisation with a twelve-thousand-year track record. In the words of the comedian and "late prophet", Bill Hicks:

> *"Here's what we can do to change the world right now: take all that money we spend on weapons and defence each year and instead spend it feeding, clothing, and educating the poor of the world – which it would many times over, not one human being excluded – and we can then explore space, together, both inner and outer, forever, in peace"*

Appendix I: Blockchains

Bitcoin and blockchain technology was first suggested in a 2009 white paper called "Bitcoin: A Peer-to-Peer Electronic Cash System". The paper was written by an unknown person or group of persons going by the name Satoshi Nakamoto. In the paper, Nakamoto argues that moving money between two parties currently requires a trusted third party – a bank – and that, because the third party mediates potential disputes, there is always the possibility of a transaction reversal. For this reason, merchants need to "be wary of their customers", requesting more identifying information from them, than would otherwise be the case. Nakamoto (2009: 1) argues that what is needed is a "cryptographic proof instead of trust" which would allow "any two willing parties to transact directly with each other without the need for a trusted third party".

In order to understand blockchains – the underlying technology that makes Bitcoins possible – we need to understand several concepts: hashing, public-private key encryption, peer-to-peer file sharing, and distributed computing[235].

Hashing is the process of using a mathematical algorithm to create a digital signature – always of the same length – that is uniquely representative of the original data. A hashing algorithm takes a document – which could be the length of a Tweet or the length of the complete works of Shakespeare – and generates an alphanumeric string of fixed length – a digital signature that corresponds exactly to the original document. Due to the nature of the hashing algorithm, a document of any size can always be 'hashed' to create a 'hash code' – a sequence of alphanumeric characters. Thus, a 'hash function' is used to "map data of any arbitrary size to data of a fixed size".

The SHA256 hash code for the above paragraph, for example, is "3696d5008fa7d3f105f612f80970e547045ee1a03226498ec97e4c02111e5501". And the hash code of that hash code is "e518bf74bae3a01bc78dd56f1b54f11bc4dc62dfc7adc6343e28c209a6836777"[236].

Hash codes have three useful features. First, even a tiny variation in the underlying data will result in the output of two very different hash codes[237]. This means that we cannot infer anything about the

[235] We draw on several Wikipedia articles to outline these technical concepts: https://en.wikipedia.org/wiki/ + "Public-key_cryptography"; "Hash_function"; "Peer-to-peer_file_sharing"; "Distributed_computing"; "Secure_Hash_Algorithms".

[236] We used an online hash code calculator, http://www.xorbin.com/tools/sha256-hash-calculator, to generate these codes.

[237] Hashing the sentence "The quick brown fox jumps over the lazy dog", for example, will return the hash code: "2fd4e1c67a2d28fced849ee1bb76e7391b93eb12", while if hash the same sentence – but change "dog"

underlying data from a given hash code, and we cannot tell if two different hash codes are related to two very different or two very similar sets of underlying data. Second, the hashing algorithm will always return exactly the same hash code if the data fed into the algorithm is the same. For example, if we hashed a copy of this page today and we hashed a copy of this page a year from now, then the hash code will be the same as long as the page has not changed. This is useful because it allows us to prove or "timestamp" a recorded date for when the page first existed. We will return to this idea shortly. Third, although it is simple for a computer to execute a hashing algorithm on any piece of data – large or small – it is almost impossible for the algorithm to be reverse-engineered. Thus, we cannot use a hash code to recreate original data that was used to create the code. The only way to reverse-engineer a hash code is to hash random documents and compare each new hash code to the hash code that we are trying to 'crack'. Although this is possible with modern computers – depending on the complexity of the underlying hashing algorithm – it requires massive amounts of computing power and is thus unfeasible in the vast majority of cases. Hashing is useful for cryptography and for the authentication of data.

Public-private key encryption is a cryptographic system that allows two parties to communicate securely, even though they have never 'met' before. The system works on the basis of two 'keys' – long strings of alphanumeric characters that are subsequently used to encrypt messages and data. One key is public and can be widely distributed, while the other key is private and must be kept both secret and secure. A computer algorithm generates, firstly, a private key and then uses the private key to generate, secondly, a public key. In the same way that a hash code is mapped to the underlying data, the public key is mapped to the private key. The public key can be used by one party to encrypt information – and because the public key is mapped to the private key – the private key can then be used to decrypt the information. Although anybody can encrypt information using the public key, only the holder of the private key can decrypt that information. Thus, public key encryption can ensure secure and private communication between two parties.

A second function of public-private key encryption is to ensure that the sender of a message of a piece of data is who they say they are; i.e. that they are the genuine sender. This can be done by using a private key to generate a digital signature which is attached to the communication. For example, I could use my private key to generate a hash code of my name and the contents of the document – and attach this to the communication that I transmit. You could then use your public key to decrypt my digital signature, and you could use a hash function to generate a hash code of the communication.

to "cog", then the returned hash code is: de9f2c7fd25e1b3afad3e85a0bd17d9b100db4b3. Although we have changed just one character in the second set of data, the second hash code shares no resemblance to the first.

The successful decryption of my signature assures you that it was me who sent the message, and the matching of the two hash codes assures you that the content of the message had not been changed. Public-private key encryption – especially when both parties have each generated a public and private key – thus allows for secure communication between two parties without them having to 'meet' and exchange a single encryption key.

Peer-to-peer file sharing is a means of distributing content between users of a computer network, without the need for a centralised computer to store the content and make it accessible for download. In peer-to-peer file sharing, content is instead stored on multiple computers in a decentralised network. If I want to access a file stored on the network, then I would need a peer-to-peer protocol application – like BitTorrent – that enables me to find all the other computers in the peer-to-peer network that currently have copies of the file. My computer will connect directly with all 'nodes' in the network, downloading a small part of the file from each. The larger the network and the greater the possible bandwidth available to each node, the faster I can download the file. As long as I continue to run the BitTorrent application, my computer will become a node in the network, allowing other users to connect to my computer and download fragments of the file.

Peer-to-peer file sharing has three important features. First, it is decentralised and requires no organising authority or centralised system of hardware. Second, it becomes more efficient the larger the network becomes. Third, it allows for massive redundancy in the storage of data; i.e. if my computer crashes, and the data is lost, a multitude of copies exist on other nodes in the network. Although peer-to-peer file sharing has caused massive disruption to the music and film industries, it also provides significant advantages as compared to the centralised storage and delivery of content by means of dedicated servers.

Distributed computing is a phenomenon where the components of a computing process are distributed over a network of computers – nodes – and where actions are coordinated by means of passing messages between nodes. Messages, in this sense, are updates about the status of different computing operations, allowing each node to update, stop, or change its current operation. All components in the network operate independently and asynchronously; meaning that there is no centralised command or consensus about what one particular node should be doing at any particular time. Moreover, distributed systems allow for redundancy in the sense that nodes could fail, or new nodes could join the network, without disrupting the underlying processes. Peer-to-peer file sharing is an example of distributed computing – seeing as it meets all these criteria. A better sense of the concept, however, is derived from distributed computing geared towards solving a particular problem.

Seti@home and Folding@home – geared respectively towards analysing radio signals and predicting protein folds – are, perhaps, better examples of distributing computing.

Image 4: Blockchain technologies: An overview of how blockchains work

The concepts of hash functions, private-public key encryption, peer-to-peer file sharing, and distributing computing, allows us to understand the blockchain functionality that undergirds Bitcoins. Without a third party that mediates transactions, digital currencies have always been plagued by two problems: the double-spend problem and the Byzantine Generals Problem (Swan 2015: 2). The

double-spend problem refers to the fact that, without a mediating party who controlls the spending and issuing of currency, nothing stops a digital currency from being spent more than once. The second problem is how to coordinate the actions of multiple parties that do not trust each other but must still, nonetheless, cooperate in some way.

Nakamoto (2009: 1) solves these two problems by suggesting that a peer-to-peer network be used that "timestamps transactions" by hashing them into an "ongoing chain of hash-based proof-of-work" which would then form a record of transactions that "cannot be changed without redoing the proof-of-work". The longest chain would not only serve as proof of the "sequence of events witnessed" but also that it came from the largest pool of CPU computing power. The distributed network would require "minimal structure", with nodes able to leave and join at any time. Nodes that re-joined the network at a later time would accept the "longest proof-of-work chain" as "proof of what happened while they were gone". Although this may sound like gobbledegook, an understanding of this process – of blockchain technology – is necessary for truly understanding what this "revolutionary" (Swan 2015) information technology makes possible. In what follows we provide an explanation of this technology.

A blockchain is a distributed ledger that is updated and verified collectively by all the nodes (computers) in the network, each time a transaction is made. Imagine that ten nodes existed in a distributed computing network, and that each node ran a special distributed application designed to maintain and update a blockchain. Assume that each node is a personal computer and that each personal computer is owned by a real person. Thus, we have ten computers and ten users in the network. Now assume that each person holds a deposit of $10 and can use the application to transfer money to any other person in the network. Each user, however, remains completely anonymous and there is no third party to mediate the transaction.

How can we be sure, then, that a transaction is verifiable? I could say that I had sent you $5 while never actually having done so. And, even if I did send the money, you could say you that you never received the $5, even though you did. In the non-blockchain world, this problem is generally solved either by using cash or by relying on a third party that makes sure that both parties remain honest. In a blockchain, however, this problem is solved by collectively updating a ledger of the transaction; thereby creating an unalterable public record that is immediately distributed across all nodes in the network. Because all ledgers are the same – and because the process of creating the ledger is a complex cryptographic process – I cannot claim that I sent the money and you didn't receive it, nor can you claim not to have received the money when you did. Let us explain further.

Assume that no blocks – records of transactions – exist in the blockchain; i.e. the blockchain has not been started yet and we still need to create a 'genesis' block. First, bear in mind that every user in the network has an "address" that can be used to send and receive money in the application. This address is a public key and serves as an identifier for each user. Each user also has a private key, but this is kept secret and secure. Thus, users in the network are 'pseudonymous': each can be identified by their public key address, but this address doesn't reveal any further real-world identifying information.

Assume that our very first transaction occurs when User 1 wants to transfer $5 to User 2. User 1 does this by broadcasting a message to all nodes. The message contains three pieces of information: the address of User 1, the transaction (transfer $5), and the address of the recipient, User 2. Each node now competes to be the first one to create a 'block' that adequately represents this transaction. The goal for each node is to generate a hash code for the transaction, but – and here is the important part – a hash code that begins with a specific number of trailing zeros. The required number of zeros is determined by the distributed application itself. Remember that any computer can easily create a hash code using a hashing algorithm, but, remember also, that a hash code cannot be 'chosen' before the fact. The exact sequence of alphanumeric characters produced by the algorithm depends entirely on the underlying information, and changing even a tiny part of that information results in an entirely different hash code. Thus, the only way to generate a hash code of the transaction that would contain a specific number of trailing zeros is to add a cryptographic 'nonce' – a random number – to the original information and see whether the resulting hash code has the required number of trailing zeros. If it does not, then the nonce is changed and the process is repeated – hundreds of millions of times – until the right nonce generates a hash code of the transaction with the required number of zeros. This process is called "proof-of-work", and this is fundamental to blockchain technology.

When a node finds an acceptable hash code, it broadcasts the nonce to every other node; which then runs the hashing algorithm and confirms that the resulting hash code is valid. The node which found the solution is rewarded by earning 'coins'; a concept to which we will return to shortly. The first 'genesis' block of the blockchain is thus formed by: 1) the information about the transaction; 2) the successful hash code of that transaction; and 3) a timestamp of when the hash code was found. This block is broadcast to call nodes which keep a copy of it.

Now, when the next transaction occurs – User 5 transferring $10 to User 7, for example – the same process occurs, except that the hash code from the previous block is included in the information that must be hashed for the creation of the new block. Again, a hash code must be found with a certain number of trailing zeros, and again random nonces must be tried millions of times before a suitable hash code is discovered. This process continues every time a block is added to the blockchain, with

each subsequent block including the hash code of the previous block. This process results in one very important characteristic of a blockchain: the inalterability of the record that it maintains.

If someone wanted to change the record of a transaction – the first transaction between User 1 and User 2, for example – then they would have to recalculate the entire blockchain because changing the transaction would change the hash code, meaning that it would no longer have the required number of trailing zeros. The hash code in the second block, however, was based on data that included the hash code in the original block. Because the first block has now been changed, the second hash code must be recalculated – and so on and so forth. Thus, if someone tries to alter a transaction recorded by the blockchain, they would be required to recalculate all or part of the blockchain. Similarly, if they broadcast a blockchain with hash codes that differed from those in other copies of the blockchain, then this copy would be rejected by the other nodes. Thus, the records in a blockchain could not be altered unless more than half of the nodes in the system cooperated in attacking the network; i.e. worked to generate and broadcast a re-engineered blockchain that contained the altered record.

Because the creation of the chain is distributed, and because nodes constantly compare with one another to see that they share the same information, the longest blockchain serves both as "proof of the sequence of events witnessed" and that it came from the "largest pool of CPU power" (Nakamoto 2009: 1). The "proof-of-work" that Nakamoto speaks about is thus the application of CPU power to the generation and testing of hash codes until one with the required number of trailing zeros is found. Proof-of-work gives underlying value to the blockchain by assuring that a certain amount of computing time is required to find a solution. Participation in the network derives from rewarding nodes for finding solutions and thus building the next block in the blockchain. Rewards come in the form of 'coins' that are given to the successful node. Coins are thus "mined" by means of applying computing power to finding hash codes; i.e. mined through proof-of-work. This transaction – the mining of coins – is itself made unalterable when the next block in the chain encodes the allocation of newly-mined coins as part of its own hash code.

The idea of a blockchain 'coin' is somewhat counter-intuitive. When we think of money – especially digital money – we generally think of a number in a computer that keeps track of how much money we have. When two parties each have $10, and the first transfers $5 to the other, then the 'numbers' for the two parties have changed from '$10' and '$10' to '$5' and '$15'. Indeed, this is generally how banking works and a trusted third party is required to record these numbers (and the transaction history) and to resolve disputes when they arise. With a blockchain, however, a coin is not a number but rather a series of digital signatures that trace the ownership of the coin from its present owner all the way back to the block where it was first created. In this sense, a coin is a "chain of digital

signatures" (Nakamoto 2009: 2) which is itself stored in the blockchain. A user does not have a 'balance' of coins; but rather an entire history of transactions from which a balance can be calculated. Let us explain further.

When a user wants to transfer a blockchain coin, or Bitcoin, from herself to another user, she must provide three pieces of information: her public address, the amount to transfer, and the public address of the user to which the coins should go. She must also provide a digital signature, based on her private key, that can be used to verify that she is who she claims to be and that she owns the required quantity of Bitcoin to make the transfer. This information is broadcast to all the nodes in the network, with each node checking the authenticity of the transaction by using the digital signature to confirm the identity of the user. The public address is then used to find all blockchain records of transactions that involve the user, which, in turn, can be used to calculate whether the user has enough Bitcoins to make the transaction. If these conditions are met, then the transaction is added to a stack of pending transactions, which then form the combined information for generating the hash code for the block. Bitcoin (the protocol) is designed to, on average, create a new block every ten minutes. Each block thus contains the hundreds of transactions that had accumulated in the previous ten minutes. Once a hash code is found for the block, the owner of that node is rewarded with 25 Bitcoins – this 'minting of coins' transaction forming part of the list of transactions that will be stored in the next block.

Because blockchains are unalterable and distributed, Bitcoin (the currency) has become somewhat of a global phenomenon. In 2010 the price per Bitcoin was around $0.50 with the total market worth $1 million (historyofBitcoin.org). As of the end of 2017, a Bitcoin was worth approximately $8000 and the total market was worth more than $100 billion (Bovaird 2017). Hence, the adoption and value of Bitcoin has increased rapidly in just a few years, proving the underlying utility and feasibility of blockchains. Because blockchains have important applications in all areas where immutability and trustlessness are useful, blockchain technologies are fast becoming the basis of an entirely new information technology ecosystem with the potential to revolutionise all aspects of human society. There are, however, some limitations and weaknesses of blockchain technologies (Swan 2015): throughput, latency, size and bandwidth, security, and wasted resources. We use the example of Bitcoin to explain these limitations and weaknesses.

Throughput refers to the problem that Bitcoin – the largest blockchain protocol in use – is currently only processing one transaction per second, compared to the 2000 or more transactions processed by VISA every second (Swan 2015: 82). Latency refers to the problem that a Bitcoin transaction currently takes 10 minutes to clear, due to the fact that the Bitcoin protocol is engineered to create a block every ten minutes. This latency is also necessary to prevent the double-spend problem; i.e. if blocks

were created much more quickly, than it might become possible to spend Bitcoin in multiple transactions before the system recognised that double-spending had occurred. Size and bandwidth refer to the problem of the overall size of the blockchain. The Bitcoin blockchain, as of December 2016, was more than 100 GB in size (Korizky 2016). The larger the size of the blockchain, the fewer nodes there are that store and run a full copy of the chain. Swan (2015: 82) estimates that, if Bitcoin operated at 2000 transactions per second, then the blockchain would grow at 3.9 GB per day.

Problem of scalability – and thus problems of latency, throughput and size – could be solved by new blockchain protocols that operate in a similar way to Bitcoin but without the same latency and throughput limitations (Croman et al 2016; Eyal et al 2016; McConaghy et al 2016). Eyal et al (2016: 45), for example, suggest a "next generation" Bitcoin protocol that would scale optimally with the size of the network, being limited only by the "capacity of the individual nodes and latency limited only by the propagation time of the network".

The problem of security refers to the potential vulnerabilities of the blockchain protocol and network. While in the early days of Bitcoin, it would have been possible to use a desktop computer to mine coins, today it requires expensive custom-designed hardware to do so economically. This fact leads to the concentration of mining power in the hands of fewer and fewer actors. The problem then, as we have noted above, is related to the potential for a '51 percent' attack whereby the network becomes vulnerable if more than half of the nodes or computing power is controlled by one group (Swan 2015). As the size of the blockchain grows, the number of nodes storing and running full copies of the blockchain also diminishes, thus potentially making the system more vulnerable. Indeed, Gervais et al (2014) argue that Bitcoin is not, in fact, a decentralised system because a limited set of actors control Bitcoin services, make decisions, mine coins, and participate in incident resolution processes. Similarly, Eyal and Sirer (2014) identify weaknesses in the Bitcoin protocol that would incentivise miners to collude in order to capture a disproportionate share of the mining rewards. As Swan (2015) notes, however, cryptography experts have suggested revisions of blockchain protocol to mitigate these vulnerabilities.

Finally, blockchains that use proof-of-work – proof of expended computing power – waste a great deal of energy. Swan (2015: 83) notes that lower-end estimates set this cost at $15 million per day, or equal to the power consumption of Ireland (O'Dwyer and Malone 2014) or Denmark (Deetman 2016). Changes in protocol and the development of increasingly efficient mining hardware, however, suggest that this is not a long-term problem (Vranken 2017). Eyal (2017) suggests, for example, that new chip architecture in Intel CPUs, called Software Guard Extensions, could help in the development of new protocols that would allow blockchains to function without the wasteful expenditure of computing

power. An even better idea is to link proof-of-work with distributed computing that would be of general use to society. If proof-of-work were linked to solving scientific problems – like DNA sequence alignment and protein folding – then two positive outcomes would result: CPU power would be redirected from useless hashing to useful work, and solutions would automatically be stored in the blockchain and thus be public domain (Oliver, Ricottone and Philippopoulos 2017). FoldingCoin is just such a protocol (Moss and Moreland 2017). Thus, there is potential not only to reduce the waste engendered by blockchain protocols but also to transform this waste into useful work and a non-excludable public good. All in all, then, although limitations exist in terms of throughput, latency, size, security, and wasted resources, these problems are being incrementally resolved as the technology matures.

Now that we have an understanding of how blockchain technologies work, we might see how they might relate to pyramidal democracy. Although the link between blockchains and democracy has been partially explored (Swan 2015; Osgood 2016; Hegadekatti 2016), pyramidal democracy, as a systematic protocol for enabling participation and civic participation, could benefit explicitly from blockchain technologies in at least three ways. First, the immutability of the blockchain would mean that outcomes of pyramidal democracy would be immune to tampering. Second, the openness of the blockchain would mean that pyramidal democracies would be easily auditable. Third, pyramidal democracies operating via blockchain protocols would mean that the platform would be intrinsically decentralised and distributed, rendering it immune to hacking and subversion. In Chapter 2 we also outline how blockchains could enable 'smart identities' that square the circle between authenticating identities and ensuring privacy; thus, rendering citizen participation in pyramidal democracies and participatory budgeting both authenticatable and private. In essence then, blockchain technologies are a powerful response to potential criticisms levelled against the feasibility of pyramidal democracy.

In this appendix, then, we have outlined the technical concepts that form the foundation for an understanding of how blockchain technologies function: hashing, public-key/private-key cryptography, peer-to-peer file sharing, and distributed computing. In short, a blockchain is a distributed ledger that is unalterable and decentralised. Miners build the blockchain by running hashing functions hundreds of millions of times and, when they find a suitable hash code, they are rewarded with coins. Miners active in the blockchain network are rewarded with cryptocurrency 'coins', which may have real-world monetary value. Although the proof-of-work necessary for mining coins is wasteful, new technologies might reduce this waste over time or put the underlying computing power to more productive uses. Although limitations and potential problems might restrict the expansion of blockchain protocols over the medium term, these problems do not seem to be insurmountable. As of 2017, there are dozens of blockchain protocols in operation and more than

1300 cryptocurrencies, with 70 having a market capitalisation of $100 million or more (coinmarketcap.com). This indicates the growing maturity of blockchain technologies. Moreover, blockchains might enable pyramidal democracies to operate in a secure, private, auditable and decentralised manner.

Appendix II: Rulesets

In what follows we outline the rules – grouped under distinct categories – that help define how pyramidal networks operate and thus how they remain stable. The categories are: delegate selection, delegate replacement, group formation, voting mechanisms, citizen powers, delegate powers, and openness. The key idea here is that the rules are generally *configurable* depending on the purpose for which the pyramidal network is formed. A group of rules configured to a specific setting would thus constitute a *ruleset*. Different pyramidal networks might then be based on different rulesets according to their context and purpose.

Following from Pivato (2009), we use the term "node" to denote what we have previously called a "group". We find that the latter term is more useful for explaining the technical characteristics of pyramidal structures, while the former term is more useful for explaining social characteristics.

Delegate selection: Delegate selection is fundamental to creating pyramidal networks and specific rules govern how selection operates at different tiers. Delegate selection, in general, should follow a standard series of phases: nomination (by oneself or by another); seconding of the nomination; and voting by all citizens within the node. Once the bottom tier of a pyramid forms, delegates would need to be chosen within a certain total timeframe. Specific timeframes for nominating, seconding, and voting would derive naturally from the total period of time allotted. If we allowed, for example, three days for the selection of delegates, then citizens might have one day to make nominations, one day to second a nomination, and one day to place their vote. Range voting – where each citizen assigns each candidate a ranking from 10 to 1 – would be the most egalitarian voting mechanism to use in electing a delegate (Pivato 2009).

Although these formal procedures for choosing delegates would be available, citizens might choose not to use them. They might instead discuss the issue, finding out who was and who was not interested in being a delegate. If consensus were reached, the citizens might skip the formal nomination and voting process all together. Depending on the configuration of the pyramidal network, delegates could also be chosen randomly by sortition – selected either from all citizens in the group, or only from those who had indicated their willingness to be selected. The rules defining how and when delegates are

selected could be configured according to the context and purpose for which the pyramidal network is formed.

While the process of electing delegates is the likely to be the same at all tiers in the pyramidal network, the election of meta-delegates (at Tier 2), super-delegates (Tier 4), etc, etc, requires these delegates to relinquish membership in their original group. We can explain as follows: whenever a delegate is selected in a Tier 1 node (a group at the base of the pyramid), that delegate naturally joins a Tier 2 node in order to represent his or her constituents. The delegate would thus participate and vote in both nodes. If that delegate was then selected as a meta-delegate, however, then they would need to relinquish their membership in the original Tier 1 node in which they were elected, and thus the group at that node would need to elect a new delegate.

To explain this, assume that we have two nodes – one at the bottom of the pyramid (Node A), and a delegate node on the second tier (Node B) in which the delegate from Node A participates. Assume that the delegates in Node B are required to select a meta-delegate from amongst themselves to represent the group at a meta-delegate node (Node C) on the third tier. They vote and the delegate from Node A is selected to be the meta-delegate. This delegate, however, cannot represent both Node A and Node B. The delegate must therefore resign their membership in Node A, and Node A must select a new delegate to join Node B. Citizens in Node A could no longer recall or replace their original delegate, only delegates in Node B could do that now.

If the pyramid had four tiers – and thus the selection of super-delegates was required – then a similar process would occur. Assume that the meta-delegates at Node C selected one of their members to represent them at the next tier in pyramid, Node D. That delegate would now become a super-delegate and would no longer be able to represent Node B; they would therefore be required to resign their membership in Node B. This would force the re-election of a meta-delegate at Node B and, in turn, the re-election of a delegate at Node A. Thus, the selection of delegates at higher tiers in the pyramid automatically results in the cascading re-election of delegates at each lower tier node in the pyramid.

While this forced re-election is *unlikely* to cause instability in the pyramid – because the citizens in the original node had agreed on the initial delegate selection – there is a possibility, if the balance of power between different sub-groups were equally distributed – that citizens would elect a new delegate who would change the balance of power in the higher-tier node and thus call for the replacement of the newly-selected meta-delegate. We should bear this possibility in mind.

Delegate replacement: Pivato (2009: 8) distinguishes between endogenous and exogenous delegate replacement. An endogenous replacement occurs when the citizens in a node become dissatisfied with their delegate, and an exogenous replacement occurs when a delegate in a higher tier node must be replaced (or re-elected) because one or more delegates have been replaced in the lower tier node that originally chose that delegate.

To explain this, let us return to our example. Say we have three nodes – one at the bottom of the pyramid (Node A), a delegate node on the second tier (Node B) in which the delegate from Node A participates, and a meta-delegate node on the third tier (Node C) in which the meta-delegate from Node B participates. The meta-delegate in Node C was originally selected by all the delegates in Node B and say, for the sake of argument, that this delegate was chosen with a vote of five yes's and four no's. When the citizens in Node A replace their delegate, they disrupt the balance of power in Node B. The delegate from Node A originally voted 'yes' in selecting the meta-delegate and now, because the original vote now stands at four in support and four opposed, all the delegates in Node B are required to vote again on the selection of the meta-delegate. The endogenous replacement of the delegate at Node B has thus caused the exogenous replacement of the meta-delegate at Node C.

Taking endogenous and exogenous replacements into account, Pivato (2009) models mathematically the potential "volatility" of each node and thus the potential stability of the pyramid as a whole. He suggests that the pyramid will be relatively stable if:

1. The citizens in a node must wait a certain amount of time (a day or more perhaps) before replacing their delegate. During this *cooling period*, reconciliation might occur between the citizens and the delegate; and
2. When citizens replace a delegate, the new delegate must wait a certain amount of time (a day or more perhaps) before he or she can participate in the next tier of the pyramid. Because this *initiation period* penalizes the citizens of the node, the capricious replacement of delegates is discouraged.

Cooling and initiation periods thus help to ensure the stability of the pyramid. As Pivato (2009: 9) notes, by changing the length of the periods we can 'tune' the stability of the pyramid; i.e. attempt to find the right balance between the stability ensured by longer cooling and initiation periods, and the responsiveness and accountability of delegates to their citizens ensured by shorter periods. In our bespoke application these periods of time could be adjusted automatically depending on the relative stability of the pyramid in question. Furthermore, these time periods could be set whenever a pyramid is created; configured, therefore, according to the context or the purpose for which the pyramidal network was originally formed.

Cooling and initiation periods are therefore important for ensuring the stability of pyramidal networks; penalising groups that capriciously replace their delegates.

Group formation: Remember that citizens and delegates can leave and join groups at will; but what happens if the number of citizens in a node drops below the minimum number that we would need in order to make the node adequately representative? Pivato (2009) suggests that when the number of citizens in a node drops below a certain threshold, the citizens would have a 'grace period' in which to recruit new citizens. If they failed to find new members within this time, then the node would dissolve, and the citizens would need to join other nodes.

We suggest that the maximum size of a node in pyramidal networks be set at eleven and the minimum size at seven; these limits, however, could be configured in our bespoke application depending on the context and the purpose for which the pyramidal network was formed. Pivato suggests the following formula for calculating the grace period given to a group depending on how far below the minimum size it drops: $4^{n-B}G$, where *n* is the current size of the group, *B* is the minimum size that we have decided upon, and *G* is a constant. If we set G at 48 days and B at 7 then we find that a node that had six citizens would have 12 days to find a new member ($4^{-1} \times 48 = 12$), a node with 5 citizens with have 3 days to find a new member ($4^{-2} \times 48 = 3$), and a node with 4 citizens would have 18 hours to find a new member ($4^{-3} \times 48 = 0.75$). A node with three or fewer citizens would dissolve automatically.

As Pivato (2009: 9) notes, the variability of this grace period allows us to "rapidly eliminate nodes where a small group of extremists or lunatics drive away all other members", while giving more time to nodes where one extremist defects from an otherwise reasonable group of citizens. The constant, G, could also be configured depending on the context and purpose for which the pyramidal network formed.

We should take note that a node might dissolve either endogenously or exogenously. An endogenous dissolution occurs when, as we described above, a citizen leaves the node and a replacement cannot be found. An exogenous dissolution occurs, however, when the dissolution of a group in a lower tier results in the dissolution of a node at a higher tier.

Recall our example above of Node A, Node B, and Node C. If a citizen were to leave Node A and the citizens were unable to find a replacement than the node would dissolve. As a result, the delegate in Node B would no longer have any citizens to represent and would thus have to leave the node. If Node B could not find a replacement within the grace period, then it too would have to dissolve. As a result, the meta-delegate in Node C would have to leave the node. Thus, the potential exists for a "dissolution cascade" (Pivato 2009: 10) where one defection leads to the collapse of the pyramid.

We can ensure the general stability of the pyramid, however, if:

1. As suggested above, a variable grace period exists during which citizens must replace lost members or dissolve their node;
2. A citizen must wait a certain amount of time before they are able to leave a node. This introduces a *cooling period* during which reconciliation might occur and gives the citizens time to find a replacement; and
3. When a citizen leaves a node, they must wait a certain amount of time before they can participate in their new node. This *initiation period* discourages capricious defection.

Similar to the cooling and initiation periods related to delegate replacement, these periods could be varied so as to tune the stability of the pyramid. While smaller time periods are desired to give maximum mobility and freedom to citizens, longer periods increase the stability of the pyramid. There is thus a trade-off between responsiveness and stability.

Voting mechanisms: A variety of voting mechanisms could be used to aggregate the preferences of citizens in a pyramidal network, either as an aid to deliberation – occurring before the process of compression – or as a means of legitimising a list of alternatives that resulted from a process of compression.

A variety of different voting mechanisms could form part of our bespoke application, with different mechanisms chosen depending on the kind of question or issue under consideration. Pivato (2009: 16-7) draws from the literature to suggest the following mechanisms and the cases under which they would be most useful: 1) a majority vote for a choice between two alternatives; 2) a Borda count for aggregating ordinal preferences on normative issues; 3) a range vote for aggregating cardinal preferences on normative issues; and 4) the mean or median of the group opinion for deciding quantitative issues.

This is by no means an exhaustive list of possible voting mechanisms or question types; we wish only to indicate that our bespoke application would enable the use of different voting mechanisms, and that rules are needed to govern when one mechanism should be used rather than another. As Pivato (ibid) notes, the optimal voting mechanism to use depends on "how the issue is framed, and what sort of decision one hopes to achieve".

We could allow delegates or citizens to choose which voting mechanism to use but, of course, this has the potential to create an endless regression because a voting mechanism must be chosen to make the original decision. We can solve this problem by identifying broad classes of different decision problems – as Pivato does above – and then letting citizens classify the issue they are confronting.

Voting mechanisms, however, are intended only to be an aid to compression and deliberation, and not the main function of pyramidal networks. We must simply acknowledge that rules would be required to govern which mechanism was used at different times.

Citizen powers: In addition to being able to participate in voting, compression, and general discussion, citizens need to be able to communicate any suggestions, concerns or complaints directly to any delegate in her representative chain – the chain of delegates linking a node at the bottom of the pyramid to a node at the top of the pyramid. The delegate who receives the communication – a complaint for example – might send it up or down the chain depending on its nature and how serious it was.

As part of the design of our bespoke application, any citizen should be able to monitor the status of the complaint – whether it had been acknowledged, moved up the chain, or otherwise dealt with. The citizen who made the complaint would also be able to flag the message as either public or private. A public complaint would be searchable and accessible by anyone in the network and might then gain additional support from other citizens. In this sense, communication up and down the representative chain is the means by which citizens could communicate directly with their representatives.

It would be standard practice for citizens to address communications to delegates only one or two tiers above them, but the freedom to contact any delegate would certainly enhance legitimacy. Restrictions on unmediated communication between citizens on low tiers and high tiers, however, might be desirable for practical purposes. As with most aspects, any restrictions could be configured either when the pyramid forms or as problems arise.

Delegate powers: In theories of political representation, delegates can either be direct representatives – communicating and expressing, more or less directly, the preferences and opinions of their constituents – or they can be trustees – following "their own understanding of the best action to pursue" (Dovi 2014: 2). At each subsequent tier of the pyramid, delegates are increasingly likely to resemble trustees rather than direct representatives. As Pivato (2009: 4) notes, a delegate is not intended to simply be a mouthpiece but to "deliberate, negotiate and perhaps compromise" on behalf of the group. For example, if a consensus was reached at Node B which was different to or contradicted a consensus reached at Node A, then the delegate at Node B would generally be expected to accept the consensus at Node B – given that they had failed to change the minds of citizens in either Node A or B. If this was unacceptable to citizens at Node A, however, they would always have the option of recalling the delegate.

While delegates would be empowered to compromise on behalf of their constituents, they would also be encouraged to deliberate directly with their constituents. They might then use the available preference aggregation mechanisms to poll their constituents and use the results as a basis for making choices at their own tier. Each delegate and group would be free to choose the frequency and intensity of these consultations, with delegates who over-consulted or under-consulted their constituents finding themselves prone to recall. Similarly, top-tier delegates would generally be expected to enter negotiations and make compromises without constantly consulting all citizens in the pyramid, although we would expect them to consult fairly regularly with delegates at the penultimate and antepenultimate tiers.

Recall our description in Chapter 6 regarding the requirement for open communication in democratic mechanisms. We noted that authoritative replies could stimulate new processes of deliberation and compression at the base of the pyramid, the results then informing counter-responses on the part of top-tier delegates. While this is certainly possible, we would not expect every reply to generate a lengthy process of deliberation and compression – especially when the reply was part of the back-and-forth of a healthy dialogue. Thus, we would ideally expect top-tier delegates to conduct negotiations mostly at their own discretion, instantiating pyramid-wide deliberation and compression only when major choices or problems arose. Any citizen, however, would be able to monitor the actions and communications of top-tier delegates, and communicate concerns up the representative chain if concerns arose.

In addition to being able to recall their top-tier delegates, we would also suggest that delegates at penultimate tiers have the power to force pyramid-wide deliberation on specific questions, and to 'reconfigure' or 'refresh' the pyramid. A pyramid reconfiguration would occur when all nodes – or all nodes above the first tier – were dissolved and the process of delegate selection restarted again from scratch. This might occur periodically so as to reconfirm the legitimacy of each delegate at each tier. The frequency at which periodic reconfigurations occurred could be set when the original pyramid was formed. A reconfiguration might also occur: 1) due to a crisis of confidence in top-tier delegates; 2) because the network or mechanism was changing its function; or 3) because the mechanism had achieved its purpose and was entering a new stage of existence.

A pyramid refresh would occur when each citizen was asked either to confirm their commitment and interest in the network, or to revoke their membership. A refresh might be required from time to time in order to 'prune' inactive nodes that would form naturally over time as citizens either lost interest or became involved in a different network. Depending on the number of citizens who opted out of the network, a refresh might result in many nodes having short grace periods to find new members and/or

trigger multiple dissolution cascades. Extending grace periods and temporarily removing penalties for leaving and joining groups, would thus help to ensure the stability of the pyramid even when it was undergoing a process of refresh.

Openness: As Gutmann and Thompson (2003) note, private deliberation allows citizens to speak candidly with one another without rhetoric or grandstanding, but also has the potential to lead to corruption and collusion. As Pivato (2009) notes, citing Elster (1998), good deliberative institutions must involve both private and public deliberation. Our default preference would be to make the deliberations and decisions of all citizens and all delegates, in all nodes, fully public. This would mean that any individual would be able to view the past or current communications of any node in any network. The use of real names in combination with a publicly-searchable history of communication would make democratic mechanisms and pyramidal democracies completely premised on openness. Such openness, of course, might create serious problems related to personal privacy.

We could address these problems by making each pyramidal network highly configurable, allowing conditions to be set relating to anonymity and openness. For example, we could set whether citizens are identifiable either by their real names, by their usernames, or by no names at all (completely anonymising every citizen in the pyramid). We could also set whether any user of the application was able to view the communication history of a node, or only citizens who were active in the pyramidal network from which that node derived. Similarly, we could set whether any citizen in the network could view any node, or only their node and the nodes of their delegates. Finally, we could have combinations of these settings, such that Tier 1 nodes were completely anonymised, Tier 2 nodes required usernames, and Tier 3 nodes required real names. We could also make Tier 1 nodes private and non-searchable, make Tier 2 nodes and higher public and non-searchable, and make top-tier nodes both public and searchable. Thus, by configuring settings related to anonymity and openness, we can finetune a pyramidal network according to its constitution or according to the context and function for which it was formed.

In this appendix, then, we have outlined the rules – grouped under distinct categories – that help define how pyramidal networks operate and thus how they remain stable. The categories are: delegate selection, delegate replacement, group formation, voting mechanisms, citizen powers, delegate powers, and openness. The individual rules are generally *configurable* depending on the purpose for which the pyramidal network is formed. A group of rules configured to a specific setting would thus constitute a *ruleset*. Different pyramidal networks might then be based on different rulesets according to their context and purpose.

Appendix III: Remuneration

In this appendix we outline some of the details related to the calculation of remuneration in pyramidal networks. As we suggested in Chapter 5, delegates at higher tiers in a pyramidal network would need to spend significant amounts of time consulting with their constituents, deliberating within their nodes, communicating with third parties, and researching facts and information related to their mandate. At high tiers, then, being a delegate would be a full-time job. Thus, it might be necessary in some case to remunerate delegates if pyramidal democracies are to be feasible.

Pivato (2009) calculates the cost of remuneration in pyramidal networks by making the following assumptions: 1) that delegates at different tiers are compensated based on the number of hours per week that we expect them to dedicate to the network; 2) that all remuneration is based on a single benchmark wage, i.e. delegates who work full-time are paid the same rate, irrespective of the tier at which they work; 3) that the benchmark wage is the average wage for the population as a whole; and 4) that citizens in the first tier are not compensated for their time.

$$\left(\frac{10^7 - 10^6}{125} + \frac{10^6 - 10^5}{25} + \frac{10^5 - 10^4}{5} + 10^4\right) W = 136\,000\,W$$

Pivato's model for calculating the cost of compensating delegates in a pyramid of 100 000 000 citizens, where W is the average wage

Variables							
Country:	N/A	**Population (millions):**	100	**Group Size:**	10	**Average Annual Income:**	W
Results							
Total Cost:	136 000 W			**Cost per citizen:**	$\frac{136\,000\,W}{100\,000\,000}$		

Tier	**Proportion of average wage**	**Number of citizens represented at tier**	**Number of unique delegates at tier**	**Salary per year**	**Total cost per tier**
1	0	100 000 000	0	0	0
2	0.008	10 000 000	9 000 000	$\frac{W}{125}$	$\frac{9\,000\,000\,W}{125}$
3	0.04	1 000 000	900 000	$\frac{W}{25}$	$\frac{900\,000\,W}{25}$
4	0.2	100 000	90 000	$\frac{W}{5}$	$\frac{90\,000\,W}{5}$
5	1	10 000	10 000	$\frac{W}{1}$	$\frac{10\,000\ W}{1}$

Image 5: Formula for calculating compensation for delegates. Pivato's formula for calculating the cost of compensating delegates, with an explanatory breakdown of the terms.

The fractions – 5, 25, 125 – indicate the shorter amounts of time we expect delegates at lower tiers to dedicate to the pyramidal network. Pivato suggests we use a factor of five to work out these periods of time, meaning that if a delegate at Tier 5 and above works full time, 40 hours per week, then a delegate at Tier 4 would work fives time less, or 8 hours per week. Similarly, a delegate at Tier 3 would work 7 hours per month, and a delegate at Tier 2 would work 80 minutes a month.

Recall, also, that when a delegate is chosen as a meta-delegate they are no longer the representative of their Tier 1 group, the same being true for delegates at each tier: they must 'resign' membership of their constituent group because they are now representing a group at a higher tier in the pyramid. This is why Pivato subtracts the total delegates at one tier from the total delegates at the tier below that ($10^7 - 10^6$, for example). This must be done to avoid double-counting and thus double-paying those delegates who become meta-delegates, and those meta-delegates who become super-delegates, etc, etc.

We can use Pivato's formula to calculate the cost of compensating delegates for their time. The total cost in this example is 136 000 W, or the average wage multiplied by 136 000. Pivato, however, doubles this number to 272 000 to account for lost productivity to the economy[238]. Compensating delegates in an economy of 100 000 000 at the average wage would therefore equal 0.272% of the total labour productivity of that economy. Although this may be of interest, it doesn't tell us, in dollars and cents, what the cost of paying delegates would be in the real world. Thus, in what follows, we calculate the costs for various countries for the world as whole.

We adjust Pivato's formula by introducing a factor that increases the salaries of delegates working in Tier 6 and above. We use a factor of 3 meaning that a delegate working at Tier 6 would receive three times the average wage, and a delegate at Tier 7 would receive 9 times the average wage. We do this to account for the increased responsibilities of higher tier delegates, although the increased cost might also be attributed to operational expenses, like equipment, staff, and travel. The increased wages of higher tier delegates, however, has a relatively insignificant effect on the total cost of compensating delegates, with the bulk of this cost occurring at the second and third tier.

[238] Whenever a delegate spends time representing citizens, then this is time that might otherwise be spent working. Thus, we can count this as 'lost' productivity. This is assuming full employment and a labour force equal to the whole population.

In the following calculations we use Gallup data on median household income gathered by means of polling between 2006 and 2012 (Gallup 2013) and population data from the United Nations. For each country we assume a network that includes the whole population, not just the available labour force or citizens over the age of eighteen. As an example of the inputs and results, we provide a full breakdown of the costs for a pyramidal deliberative network in the United States (see Table 6).

Variables							
Country:	United States	**Population (millions):**	322	**Group Size:**	10	**Average Annual Income:**	$43 585
Results							
Total Cost:	$19.5 billion			**Cost per citizen:**	$60.51		

Tier	**Proportion of average wage**	**Number of citizens/delegates at tier**	**Number of unique delegates at tier**	**Salary per month**	**Total cost per tier**
1	0	322000000	0	$0	$0
2	0.008	32200000	28980000	$29	$10.1 billion
3	0.04	3220000	2898000	$145	$5.5 billion
4	0.2	322000	289800	$726	$2.52 billion
5	1	32200	28980	$3 632	$1.26 billion
6	3	3220	2898	$10 896	$379 million
7	9	322	290	$32 689	$114 million
8	27	32	29	$98 066	$34 million
9	81	3	3	$294 199	$11 million

Table 4: Total cost of compensating delegates in a pyramidal network comprising the USA

In the United States, then, it would cost approximately $19.5 billion per year, or $60.5 per citizen, to compensate delegates for their work; less than 4% of the US defence budget. This would ensure one full-time representative, at Tier 5, for every ten thousand citizens, and many additional full-time representatives at higher tiers. This is a significantly improved ratio from the 1:40 000 envisioned by the framers of the American constitution (Thirty-Thousand 2010) and significantly better than the current 1:700 000 ratio (Burnett 2011).

The low levels of remuneration for delegates at lower tiers is of potential concern, especially as these delegates would generally need to dedicate far more time to their duties than Pivato's five-factor

model assumes. To investigate the results, we can change the model either by changing the factor or by changing the tier at which full-time work is fully compensated. If we change the factor from 5 to 3 then the total cost is $67 billion, or $208 per citizen. Under this scenario, delegates at Tier 2 would receive $135 per month and delegates at Tier 3 would receive $404 per month. If we changed instead the tier at which full-time work was fully compensated, from Tier 5 to Tier 4, then the total cost is $94 billion or $291 per citizen. Under this scenario there would be one full-time representative for every thousand citizens. Changing the factor thus increases the remuneration that lower tier delegates receive but leaves the ratio of citizen to full-time representative unchanged. The most ideal – but more expensive – option is thus to lower the tier at which delegates are remunerated full-time.

In all calculations, the cost of compensating delegates is based on a single benchmark wage and – the higher this number – the higher the total and per-capita cost becomes for compensating delegates. It is thus far more expensive to compensate delegates in high-income rather than in low-income countries. The cost per citizen, however, remains linked to the average benchmark wage, meaning that the cost per citizen doesn't change depending on the size of the pyramidal network – assuming that that the average group size does not change.

In Table 7 we list the per-capita costs of pyramidal networks in the ten highest-earning countries and the ten lowest-earning countries. In calculating these numbers, we have not changed the factor or the tier at which full-time work is compensated; i.e. we have stuck to Pivato's original formula. Recall, that these numbers are based on figures from Gallup (2013) and the United Nations.

Country	Average Wage	Population (millions)	Cost per citizen
Countries with highest median household income			
Norway	$51 489.00	5.25	$71.50
Sweden	$50 514.00	9.8	$70.14
Luxemborg	$52 493.00	0.6	$72.89
Denmark	$44 360.00	5.7	$61.20
Finland	$34 615.00	5.5	$48.00
United States	$43 585.00	322	$60.50
Canada	$41 280.00	36	$57.30
Australia	$46 555.00	24	$64.64
Netherlands	$38 584.00	17	$53.57
Germany	$33 333.00	82	$46.28
Average	$43 680.80		$60.60
Countries with lowest median household income			
Liberia	$781.00	4.6	$1.08
Burundi	$673.00	10.5	$0.93
Mali	$1 983.00	18	$2.75
Burkino Faso	$1 530.00	18.6	$2.12
Madagascar	$1 013.00	25	$1.41
Sierra Leone	$2 330.00	7.6	$3.24

Rwanda	$1 101.00	12	$1.53
Benin	$1 502.00	10.8	$2.09
Togo	$1 571.00	7.6	$2.18
Zambia	$1 501.00	16.5	$2.08
Average	$1 398.50		$1.94

Table 5: Costs of compensating delegates in countries with the highest and lowest median household incomes

As we see, the cost per citizen varies dramatically depending on the benchmark average wage. We can also include China ($8.58) and India ($4.40) to the list. In calculating the average cost per citizen for a global pyramidal network, we can use the mean of the twenty countries in the list ($22 539) and a population size of 7 billion. This results in an average cost per citizen of $31.30. If we take, instead, the actual median global household income of $9733 (Gallup 2013), then the average cost of remunerating delegates in a global-level pyramidal network is $13.5 per-capita – or $94.5 billion.

Several observations follow from this data. First, if a portion of the Tobin tax dividend were used to fund a global pyramidal network then it would cost 30% of every citizen's dividend – if the cost were averaged. As we see, however, the cost is much smaller in low income countries, amounting to less than 3% of the per-citizen Tobin tax dividend of $100. In higher income countries the figure is closer to 60%. On this basis, then, a global-level pyramidal network might be financed by means of a Tobin tax and still leave significant resources per-capita resources for citizens to allocate in the developing world.

Second, these costs are representative of only one pyramidal network, while our intention is to democratise the public sphere by means of creating a pyramidal democratic mechanism for each issue public or institution of importance. Clearly, Tobin tax dividends cannot simultaneously fund multiple networks. In the majority of cases, however, we would not expect delegates at lower tiers to receive remuneration. Only those top tier delegates who carry out the work of the mechanism are likely to be compensated, in a similar fashion to the full-time employees of charities and non-governmental organisations. Private citizens would thus need to bear these costs by donating to the mechanisms in which they have an interest. A similar model is used to pay for the upkeep of Wikipedia.

If pyramidal mechanisms were able to acquire a tax-exempt legal status, however, then citizens would be able to claim tax deductions for donations to democratic mechanisms. If doing so, in turn, was made effortless for citizens, by means of integrated banking and tax systems, then it might become simple to crowdsource the per-capita costs for compensating delegates in pyramidal networks and mechanisms.

In this appendix, then, we have provided some details related to the calculation of remuneration in pyramidal networks. We find that the per-capita cost is linked to the average wage in the country in

question. We also noted that decreasing the tier at which delegates are compensated full-time increases the average level of compensation in the network as a whole, and dramatically increases the ratio between citizens and full-time representation. Compensating delegates full-time at Tier 4 of the pyramidal network, for example, ensures one full-time representative for every thousand citizens.

Appendix IV: Problems in Deliberative and Democratic Theory

Introduction

In this appendix we cover several problems in deliberative and democratic theory and suggest how they relate to pyramidal democracy. First, we suggest how pyramidal democracy relates to social choice theory, on the one hand, and to various criticisms of deliberative theory, on the other. Our key conclusion is that pyramidal democracy may go some way towards resolving these problems in practice. Second, we review deliberative theory from the perspective of pyramidal democracy; i.e. outline the ways in which deliberative theory might contribute to deliberative theory. We suggest that pyramidal democracy might represent a potential fourth phase in deliberative theory and, by doing so, help to realise the 'radical democratic project' advocated for by some theorists. Third, we outline how pyramidal democracy might relate to certain perennial problems in democratic theory: representation, ideology, false consciousness, consent and consensus.

Problems in Deliberative Theory

In this section we examine various problems in deliberative theory in light of pyramidal democracy. First, social choice theory suggests that, under certain innocuous conditions, the use of voting mechanisms to aggregate preferences leads to certain unavoidable problems. The implication of these problems is that the meaningful aggregation of preferences is not completely feasible. Our key response is that deliberation can solve these problems, and thus they might be overcome by means of deliberative networks. Second, we respond to the various criticisms levelled against deliberative theory itself – that it engenders pathologies, cannot ensure adequate levels of equality, and that it is ineffective. We argue that deliberative networks resolve many of these problems, problems which have always plagued the practical instantiation of deliberative democracy.

Social Choice Theory

Social choice theory claims that certain problems exist under certain conditions that prevents the successful aggregation of preferences – via voting mechanisms – and thus problematises the articulation of collective will. The existence of these problems might imply that democratic decision-making is unstable, arbitrary, meaningless, or manipulatable by elites. One reading of these

implications is that oligarchy or rule by technocrats is justified (Riker 1982). Although we have noted that voting mechanisms are used only as inputs to deliberation – or to finalise a selection between those options that resulted from deliberation – it important to respond briefly to the main claims of social choice theory.

Social choice theory is concerned with how groups of individuals choose a winning outcome (a candidate, a policy, etc) from a given set of options. Rather than a single theory it is a "cluster of models and results" (List 2013) concerning the aggregation of individual inputs (preferences or votes, for example) into collective outputs (policies, judgements, preferences, collective decisions). Some major questions with which social choice theory is concerned are: how different voting mechanisms affect outcomes, what characteristics lead to voting systems that can be called democratic, and how individuals rank different social alternatives in an order of social welfare. Social choice theory is most often associated with the work of Nicholas de Condorcet (1743-1794) – from whom we get Condorcet's jury theorem and Condorcet's paradox[239] – Jean-Charles Borda (1733-1799), and Kenneth Arrow (1951) from whom we get Arrow's impossibility theorem.

As List (2013) notes, at the heart of social choice theory is the analysis of preference aggregation, understood as the "aggregation of several individual's preference rankings of two or more social alternatives into a single, collective preference ranking (or choice) over these alternatives". According to Dryzek and List (2003: 2), social choice theory is the main competing tradition to deliberative theory because social choice theorists argue that the aggregation of preferences is "bedevilled by impossibility, instability, and arbitrariness" and, therefore, that a collective will cannot be ascertained.

This argument follows from Arrow's seminal work where he proved that no aggregative mechanism exists that would function under a set of "seemingly innocuous" conditions (ibid). Arrow's impossibility theorem was subsequently used to attack democracy and democratic collective decision-making as an empty and arbitrary process (Riker 1982; Hardin 1993). The argument at the heart of this attack is that, if the function of liberal democracy is to enact policy that reflects the collective will by means of aggregating individual policy preferences – and the impossibility theorem proves that such aggregation is impossible – then democratic decision-making must be, in some sense, arbitrary.

To explore this problem, let us consider an example.

[239] Condorcet's jury theorem states that if the members of a jury have a greater than 50% chance of choosing the correct verdict, then adding more jurors will increase the chance of reaching a correct verdict. Condorcet's paradox speaks to the problem of cycling where, given a preference ranking of three alternatives, majorities exist for each of three possible rankings, thus leading to a cycle where no clear winner is obtainable.

COALITION	PREFERENCE RANKING		
	First choice	**Second choice**	**Third choice**
1	Solar	Wind	Gas
2	Wind	Gas	Solar
3	Gas	Solar	Wind

Table 6: Coalitions within a voting public. No majority exists that would support one choice over the other two. Instead a majority exists that supports each of the three choices over the alternative; a cycle or paradox

Table 1 describes the preferences of a voting public who are asked to rank a series of three energy options: solar, wind, and gas. If each of the options were the subject of a vote and all individuals voted for their most preferred option, then a majority would vote for Solar over Wind, a majority would vote for Wind over Gas, and a majority would vote for Gas over Solar. Majority voting through such a pairwise comparison of alternatives would therefore not produce a winning outcome. This is an example of Condorcet's paradox or, simply, a voter's paradox. The worrying implication is that, although the preference ordering of the individuals in each coalition is consistent and rational, the outcome is circular and irrational. Arrow examined this paradox and determined that no mechanism exists – under certain conditions – that can resolve this paradox if three or more people are voting on three or more options. Without going into too much detail here[240], we should acknowledge that the conditions that Arrow identifies are reasonable enough. Thus, does the impossibility theorem imply that the outcomes of voting in our deliberative networks may be unstable, arbitrary, meaningless, or manipulatable by elites? We can respond, fortunately, in at least three ways.

First, we can point out that aggregation problems like the voter paradox, while certainly existing, do not seem to happen very often (Neufeld, Hausman and Rapoport 1994; Kurrild-Klitgaard 2001; Van Deemen 2014). One reason is that not all possible preferences are held by voters because large blocks of voters often share similar preferences. Aggregation problems are also avoided when the problem under consideration can be measured on a single dimension (Black 1958). If we were setting the rate of tax, for example, and every citizen voted by submitting what they thought was the ideal tax rate,

[240] The five conditions identified by Arrow are as follows (we use the terminology of Pildes and Anderson (1990) here): rationality, non-dictatorship, sovereignty, unanimity, and independence of irrelevant alternatives. Rationality (also called transitivity) refers here to the idea that the social preference ranking – the order in which individuals rank alternatives – must be consistent. For example, if a community prefers solar over wind, and wind over gas, then it should follow that the community prefers solar over gas. Non-dictatorship means that no single individual's preferences should automatically control the outcome. Sovereignty (universal domain) means that individuals should be able to prefer any option at all and rank options in any way they like. Unanimity (or weak Pareto principle) means that, if everyone prefers one option over another, then society should prefer that option as well. Independence of irrelevant outcomes means that the way in which any two options are ranked by individuals should be affected only by that ranking and not by how individuals rank those options against any other option. For example, the fact that a majority of citizens prefer solar to wind should not be affected by the fact that a majority of citizens prefer wind to gas or even nuclear to solar.

then we could find a single median tax rate by simply aggregating all the votes. Because the question has only one dimension – a percentage – it becomes possible for the voting outcome to be "single-peaked". When outcomes are single-peaked, voting paradoxes are avoided. By means of deliberation, moreover, we can unpack the normative dimensions of a choice and then find acceptable choices on each separate dimension (Miller 1992). Thus, the more that issues are single-peaked – or the more that, through discussion, the dimensions of the choice can become single-peaked – the less often we can expect to run into aggregation problems. Deliberation via deliberative networks might then help to render problems single-peaked, and thus avoid aggregation problems.

A second response is to criticise the assumptions upon which social choice theory is based. Pildes and Anderson (1990: 2127) argue that social choice theory rests on "peculiar conceptions of rationality and democratic politics". Once these conceptions are exposed, they argue, social choice theory poses "no significant challenge to the general legitimacy and meaningfulness of democratic decision making". We can identify four such conceptions:

1) Social choice theory assumes that individuals "arrive at the process of democratic decision-making with their preferences already well-ordered" (2144) and that the "central task" of democracy is thus simply to aggregate these well-behaved sets of preferences. This assumption ignores the possibility that preference orderings are formed *by means of* participation and deliberation, and not prior to it.
2) Social choice theory ignores the possibility of social learning and empathy: an individual might change the ordering of their preferences if, through communication, they find that others – especially others with whom they have some kind of reciprocal relationship – express a level of preference intensity that exceeds their own.
3) Social choice theory assumes that preference rankings are mechanistic; i.e. that all of an individual's values, goals, and perspectives are completely expressed within a single preference ranking, and thus that the rankings can simply be compared against possible options in order to find the best course of action. But all values, goals and perspectives cannot be expressed within a preference ranking; "interpretation and characterization of both the current problem and the meaning of past choices" is a basic requirement for making rational choices (2154). In other words, rationality in decision-making is nuanced, contextual, and dialogical, and this fact is disregarded by mechanistic assumptions about preference orderings and their effectiveness at encoding values and perspectives.
4) Social choice theory submits that choices "should be evaluated only in terms of the outcomes they generate" (2144). Social choice theory is thus incapable of capturing or evaluating the meaning attached to decisions. For example, two citizens might both express a preference for

> wind energy, but one might do so because of a deeply-held conviction about environmental stewardship while another citizen might own shares in a wind turbine company. Social choice theory tells us nothing about differences in the meaning behind choices.

Thus, Pildes and Anderson challenge the validity of the assumptions that underpin a social choice understanding of rationality. These assumptions indicate, Pildes and Anderson claim, a failure to recognise the "fundamental plurality of values at stake in private and public choices" (2143). Social choice theory thus seems ill-equipped to take into account the value that context and social learning brings to the process of collective decision-making. Bringing to light the reasons that inform specific choices is a core function of deliberation and a core part of collective decision-making, yet these reasons tend to be disregarded in social choice theory. Aggregation problems might, then, be avoided in the event that deliberative networks enabled citizens to collaboratively determine their preferences, to engage in social learning, to express intensity of feeling, and to express the meaning behind their choices.

A third response to the implications of social choice theory is to relax one or all of Arrow's five conditions. As Dryzek and List (2003: 7) note, if we can relax a condition without increasing the chance of agenda manipulation or the articulation of false preferences, then we have a potential escape-route from that condition. A deliberative setting, Dryzek and List argue, is the key to relaxing the conditions without engendering negative consequences. This is because deliberation has informational, argumentative, reflective, and social aspects of importance, all of which can affect the preferences, judgements and social dispositions of individuals.

In short, we can identify five possibilities for how deliberation can negate social choice theoretic problems: 1) if deliberation is iterative, and participants are thus incentivised to reveal their preferences truthfully, then problems of tactical voting and strategic manipulation are lessened[241]; 2) if deliberation can induce preference structuration – meaning that it can induce single-peakedness in the main dimension of the problem under consideration – then the condition of sovereignty (that all choices must be available to all voters) can be relaxed; 3) if preference structuration cannot be induced – participants cannot find a main dimension of the problem – then deliberation may help to find underlying "tacit issue-dimensions" that *are* prone to preference structuration[242]; 4) if deliberation

[241] This allows an escape from the Gibbard-Satterthwaite theorem (Gibbard 1973; Satterthwaite 1975) that states that for every voting rule, one of the following three conditions must hold about the rule: a dictator exists that can choose the winner; possible outcomes are limited to two alternatives; or the rule is vulnerable to tactical voting and strategic manipulation. Deliberation, Dryzek and List argue, has the potential to obviate to some degree the third condition and thus allow an escape-route from the theorem.

[242] In other words, if we can't agree on a single important dimension for the problem, then perhaps we can break the problem down into its constituent parts until we can find single dimensions. If this is possible, Dryzek

can induce individuals to agree upon a set of relevant alternatives or outcomes – thus deleting some alternatives from the list of possible options – then the condition of independence of irrelevant outcomes can be relaxed[243]; and 5) if deliberation facilitated consensus on a single means by which to compare the welfare of different individuals (an interpersonally comparable evaluation variable), and we reached consensus on how this variable was used to aggregate individual interests into collective outcomes, then all of Arrow's conditions could be relaxed[244]. Deliberation is thus the means by which these five possibilities might be realised.

We are suggesting, then, that deliberative networks might enable Arrow's five conditions to be relaxed and thus aggregation problems avoided. First, deliberation in pyramidal networks is iterative. Second, compression engenders preference structuration, problem reformulation, and the selection of relevant alternatives. Third, our bespoke application might, over time, be developed so as to include both an interpersonally comparable evaluation variable and principles for its application under different contexts. Pyramidal deliberative networks, therefore, might help to solve social choice theory problems.

The overall implication of social choice theory, as Radcliff and Wingenbach (2000) note, is that a more participatory model of democracy is justified. This is implied because the learning effects of participation tend to facilitate processes of preference structuration that help to resolve social choice-theoretic problems. Thus, rather than indicative of a fundamental inconsistency, social choice theory "invites engagement, rather than resignation" (Sen 1999: 365) and shows "exactly what deliberation must accomplish" in order to make collective decision-making possible (Dryzek and List 2003: 28). This

and List (2003: 19-20) continue, then the overall problem *may* be solvable by one of the following solutions: 1) subdividing the decision (separating meta-level from substantive agreement); 2) lexicographic hierarchies of dimensions (ordering what voters think are the most and least important dimensions of the problem); 3) logrolling (trading favours and making compromises); or 4) demonstrating the nature of the problem and "creatively crafting new solutions" (even if the problem is intractable in terms of reaching a collective decision, perhaps new insights are gained such as to bypass or reconstruct the problem in some way).

[243] For example, if we were considering eight possible renewable energy projects, then we might find that household solar was ranked 5th in popularity. However, by means of debate and discussion we find that no one has ranked solar higher than 4th position, i.e. nobody was particularly passionate about household solar. We thus decide, by group consensus, to remove this alternative from our set of relevant alternatives. By deleting the alternative, we have violated the condition of independence of irrelevant alternatives by changing the rank ordering of those options that are accepted into our final set of relevant alternatives, but, by doing so, we have reduced the chance of this alternative being used strategically to manipulate the vote

[244] In other words, if we could agree on a single method of comparing the welfare of different individuals (perhaps on the basis of Rawls's basic goods or Sen's 'functionings') and we agreed on a principle about how to choose how to aggregate individual interests, for different questions or problems, then we would truly be able to aggregate preferences without encountering the problems identified by Arrow. Thus, "informational broadening" – especially by means of interpersonal comparisons of wellbeing – is an "effective way of overcoming social choice pessimism and avoiding impossibilities" (Sen 1999: 366)

suggests, therefore, that democracy "must in the end have a deliberative aspect" (ibid). Pyramidal deliberative networks facilitate that aspect.

In conclusion, then, it seems that social choice-theoretic problems are not insurmountable. This does not mean, however, that these problems are unimportant, but rather that deliberation is crucial in overcoming them. More to the point, if we are to make the project of pyramidal networks a reality then we must remain especially cognisant of aggregation problems and the deliberative mechanisms by which they might be resolved. Our design criteria must therefore be adapted, as and when problems arise.

Criticisms of Deliberative Theory

Deliberative democracy has been criticised on the basis of pathologies, equality, and effectiveness. We will examine each of these criticisms in turn and suggest how pyramidal deliberative networks might ameliorate the underlying problem. We argue, therefore, that practicable deliberative networks are a cogent response to the criticisms levelled against deliberative theory.

Pathologies: The key criticism here is that deliberation can lead to a pathological outcome; i.e. where no member of a group wants to be "less extreme than the group median" and where a "mean–shifting pressure" exists that acts to prevent any member being less extreme than the group mean (Cohen 2009: 254). In essence, this objection relates to the problem of "groupthink" (Janis 1971) whereby moderate individuals in homogenous groups feel pressured to adopt the prevailing opinion of the group, not only subverting their true preferences but also, in turn, shifting the prevailing opinion in a more extreme direction. This phenomenon is enhanced when individuals in the group, representative of the prevailing opinion, have a rhetorical advantage or an authoritative social position.

Cohen suggests that this problem can be solved by ensuring heterogeneity among the group, by deploying moderators, or by structuring debate in specific ways. Thus, deliberative networks might mitigate this problem in a number of ways: 1) by requiring citizens to articulate their own solution before they can view the solutions of others, thus ensuring that a broad selection of viewpoints – heterogeneity – is established prior to debate; 2) by means of a citizen in each group taking on the role of moderator, as we have noted in the previous chapter; and 3) by the design criteria of our bespoke application which allow citizens in one group to easily view and 'import' the solutions, or arguments, of citizens in other groups, further enhancing the heterogeneity of perspectives.

Another possibility is to purposely create heterogenous groups before debate begins. If we asked citizens to articulate their solution prior to group formation, and/or if we collected demographic information or information related to their political orientation, then our bespoke application would

be able to allocate citizens to groups in such a way as to maximise heterogeneity. We could also employ a 'double-pyramid' structure where citizens were first allocated to like-minded groups, where they could properly formulate their arguments, and were then reallocated to heterogenous groups, where they would necessarily have to defend the feasibility and desirability of their solution. Moreover, pyramids could be formed purely on the basis of sortition, thus, ensuring a random distribution of opinion. Unfortunately, however, we may not be able to always have our cake and eat it too: homogeneity may limit inequality but engender groupthink, but heterogeneity may lead to the silencing of outlying voices. The point here, however, is that pyramidal networks are *configurable* and thus allow for various combinations of homogeneity and heterogeneity. Only experimentation will determine the best combinations in different contexts.

Homogenous groups with few countervailing opinions, moreover, may be of functional importance. So-called 'enclaves' of deliberation might create "space for marginalized political communities to articulate their views" (Pivato 2009: 19, drawing on Sunstein 2003). Thus, a special advantage of "enclave deliberation" is the development of positions that would otherwise be "invisible, silenced, or squelched by general debate…[and]…many desirable social movements have been made possible through this route" (Sunstein 2003: 94). Drawing on this insight, then, it might be difficult to determine, before the fact, whether deliberative pathologies would have a positive or negative effect.

As with most aspects of pyramidal networks, then, we would need to remain vigilant for deliberative pathologies, and adapt our design criteria, if and when problems arose. All in all, however, pyramidal democracy has the potential to instantiate Sunstein's "important lesson" about polarization: that it is desirable to create spaces for enclave deliberation but "without insulating enclave members from those with opposing views" and "without insulating those outside of the enclave from the views of those within it" (98). Pyramidal networks make this possible by linking enclaves together in a productive way.

Equality/Inequality: Regarding the problem of equality, we can outline three key criticisms. First, because citizens have varying degrees of intelligence and rhetorical skills, any group engaged in deliberative democracy might become dominated by one or more individual. Second, because citizens have unequal time and material resources, not all citizens have equal opportunities to participate in deliberation. Third, because some citizens have more economic or social power than others, some citizens have more power to determine whether the outcomes of deliberation are *used or not used* to actually modify or implement policy; i.e. there is a difference between the equal impact that each citizen enjoys during deliberation, and the equal influence they have, post-deliberation, to affect the real world.

1) Unequal rhetorical abilities and intelligence: Cohen (2009) notes that the evidence, scant though it may be, indicates that this problem has been exaggerated by critics of deliberative democracy. Even when discussions focus on abstract topics, deliberative capacities seem to be "reasonably widely shared" (253). The empirical evidence we reviewed in Chapter 4 supports this assertion.

We cannot deny, however, that citizens who are particularly perspicacious – and perhaps unscrupulous – as well as citizens with natural charisma and rhetorical ability, are likely to dominate deliberations. There is no straightforward means by which to make citizens more equal when it comes to abilities and intelligence. In face-to-face deliberations, however, we usually minimise this problem by means of procedural rules – like allotting every person an equal amount of time to talk or determining the order in which people speak by random lot.

With online deliberation, then, we might apply similar procedural rules by adjusting the design criteria of our bespoke application[245]. We would also suggest that, because deliberation is online, the effect of real-world factors – like charisma, physical appearance, tone of voice, etc – might be eliminated or attenuated. This might provide for the possibility of greater equality. Finally, as Pivato (2009) argues, the method of iteratively selecting delegates should result in the most competent and self-assured citizens being selected for at each tier. This would help to minimise problems of inequality, at least at the higher tiers of the pyramid.

2) Unequal time and material resources: While inequality of time and resources is a pernicious problem when it comes to face-to-face deliberative democracy, pyramidal democracy allows access to deliberative spaces at any time and from any location, substantially broadening equality of access. Inequality in access to technology and the capability to use technology – i.e. the digital divide – remains a problem but, as we have suggested, this problem is expected to be resolved the more that countries and societies adapt to the digital age.

3) Unequal influence: Knight and Johnson (1997) note that there is a difference between impact and influence. Impact means that my vote is meaningful because how I vote helps to determine the outcome. Influence means that I have power to affect how others vote or how the outcome of the vote actually affects other outcomes. For example, ten citizens may sit down to deliberate over policy – and their deliberations may be so ideal as to approximate an ideal speech situation – but, even

[245] Brand (2009: 232), for example, describes a debate format adapted from California governor Jerry Brown: "Whichever debater goes first holds forth for fifteen minutes and then is interviewed for ten minutes by the second debater, who has to conclude by summarizing the first debater's argument *to the first debater's satisfaction*…then they reverse roles" (original emphasis). Integrating this kind of format into our application, for example, may go some way towards levelling the playing field between citizens with different rhetorical abilities. Moreover, it might facilitate social learning because citizens are required, or invited, to *help each other* to articulate their positions in a clear and coherent manner.

though they have reached consensus and they all had equal impact, they may not all have equal influence to see that the chosen policy is enacted. The problem here, then, is that, although deliberation may be perfect, differences in power – post-deliberation – might mean that inequalities ultimately prevail.

For example, when deliberative polls are commissioned by governments or corporations or civil society groups, although the deliberating citizens may be as equal as is possible, those citizens do not necessarily have the *power* to see the results of their deliberation carried through into policy. There is also a related problem here: even if the outcomes of deliberation were carried through into policy, those deliberating citizens, *themselves*, would be exercising unequal influence. This is because, if the policy is going to affect all citizens, then all citizens should have a chance to participate in deliberations. No matter how ideal a deliberative poll, for example, the outcome cannot be truly representative of all the preferences of all citizens who would ultimately be affected by the resulting policy.

Deliberative networks might solve both these problems. The first problem, of different levels of influence, is solved because the citizens who deliberate over policy are the same citizens who decide how the outcomes of deliberation should be used to modify or implement policy[246]. It is the top-tier delegates in the pyramidal network, then, who represent the collectivised influence of all the citizens who constitute the pyramid. The second problem – of unequal influence because not every single citizen can participate in deliberations – is also potentially solved by means of deliberative networks. If a deliberative network is the means by which a specific policy is deliberated upon, and given that no intrinsic barriers exist that would prevent citizens from joining the pyramidal network, then it follows that – all things being equal – non-participants were not necessarily excluded, but chose to opt out. Those who decided, post facto, that they want to participate could always join the existing pyramidal network, or form a new one, in order to revisit the issue.

Effectiveness: We can identify four key criticisms that question the ultimate value or effectiveness of deliberation: difficulty in proving causality, impossibility of uncovering truth, naivete concerning power, and the feasibility and desirability of consensus.

1) Difficulty in proving causality: Cohen (2009: 254) notes that it is sometimes difficult to link deliberation with changes in decisions and outcomes. For example, we cannot always be sure that it

[246] In the following chapter we show how democratic mechanisms and pyramidal democracies – based on pyramidal deliberative networks – can enable citizens to project power. These mechanisms operate in a bottom-up manner, meaning that the citizens who form the base of the pyramidal network are those citizens who decide how the *outcomes* of their deliberations should be used to implement new policy or modify existing policy.

was deliberation that resulted in a policy change, or that it was deliberation that caused a citizen to change their mind on some issue. Although it is difficult to make an explicit link, deliberation does seem to be "part of the story" (ibid) and people generally emerge from deliberations looking more like "ideal citizens" (Luskin et al 2002: 484). The general effectiveness of deliberation is also suggested by our review of the empirical evidence on deliberation.

At the core of the causality criticism, however, is the problem of linking policy changes explicitly to deliberation. If we cannot be sure of where the effect comes from – when opinions shift and why – then we cannot, with a clear conscious, base our entire democratic system on deliberative democracy theory. Pyramidal democracy solves this problem by providing empirical evidence – by means of the data generated from compression – of the chain of causality that links deliberation in each group at each tier to a specific outcome. In other words, we can always tell that deliberation at A caused an outcome at B because, in a pyramidal network, this kind of causality is axiomatic.

2) Impossibility of uncovering truth: Hardin (2009) argues that deliberation cannot be expected to uncover truth in any meaningful way. He claims, first, that deliberation cannot help us to uncover normative truth[247], second, that it cannot help us uncover truth about the best means to achieve a goal, and, third, that it cannot help us uncover the seriousness of the disagreement that we have over the best ends. In relation to the first claim, Hardin (236) says that values and ends are "not decidable" because there is no such thing as an objective truth when it comes to normative values. Although we can deliberate to find greater agreement on a normative truth, this is not the discovery of intellectual debate but a "poll of everyone to find out what their diverse interests might be".

This argument seems to be premised on the same social choice-theoretic assumptions that we attacked in the previous section: primarily the failure to recognise the "fundamental plurality of values at stake in private and public choices" (Pildes and Andersen 1990: 2143). Particularly in the sense of assuming that individuals come 'pre-packed' with a neatly ordered set of interests and preferences, rather than formulating those preferences through communication, social learning, and collective decision-making. When we deliberate we are not simply taking a poll of our "diverse interests", we are formulating, re-evaluating, and weighing various interests that we might either not have possessed or not been aware of prior to deliberation. Even though Hardin is correct that normative truths cannot be objectively uncovered, he fails to tell us why achieving agreement over normative truths is not an important and useful achievement. By means of deliberative networks, and the social learning and collective decision-making they enable, such agreement might be reached.

[247] Normative in philosophy generally means a statement based on values. Normative truth is thus the idea that something based on values can be objectively true.

In relation to his second claim – that deliberation does not uncover the best means for accomplishing a goal – Hardin suggests that deliberation is best left in the hands of experts because citizens do not have the knowledge and expertise to productively undertake this work. Hardin misses the point here in two ways. First, experts do not necessarily possess the contextual and tacit knowledge that is necessary for determining the best means of accomplishing a goal (Cohen 2009). Second, it is not necessarily the function of experts to make decisions but rather to provide expert information and outline the costs and benefits of different options; i.e. to reduce the complexity of decision-making for non-experts (Wexler 1975; Christiano 2012). Indeed, it is important that expert authority is derived from, and evaluated by means of, deliberative processes (Warren 1996). Thus, there is no reason that the best means of accomplishing a goal cannot be uncovered when experts and lay citizens engage in deliberation. Pyramidal networks might facilitate deliberation to this end[248].

In relation to Hardin's third claim – that deliberation cannot uncover the seriousness of our disagreement over ends – he argues that, because societies are much more heterogenous today than they were in the past, unanimity in government or politics can no longer be found. The first claim, unfortunately, is not related in any way to the second claim. Whether or not unanimity can be reached is independent of whether or not we can uncover the seriousness of our disagreement over ends. Just because we disagree does not mean that we cannot discover – by means of deliberation – why we disagree and on what dimensions we disagree. Indeed, this is the entire premise of mitigating social choice-theoretic problems by means of deliberation: when we uncover the dimensions of disagreement, we can attempt to deconstruct the problem along those different dimensions, leading either to the possibility of single-peakedness or the "creative crafting of new solutions" (Dryzek and List 2003: 20), i.e. bypassing or reconstructing the problem in some way. Deliberative networks might facilitate this process by providing deliberative spaces and forcing problem deconstruction by means of compression and compromise. Hardin's (2009: 239) claim that deliberative democracy has come "too late" to be of any use, then, is poorly substantiated.

3) Naivete concerning power: There are at least three pertinent criticisms here. First, that deliberative processes are vulnerable to capture by elites. Second, that elites will simply ignore deliberative outcomes that go against their interests. Third, that pyramidal networks are vulnerable to attack and manipulation because ICT technologies are themselves vulnerable to attack and manipulation.

The first criticism – vulnerability to elite capture – relates to the problem of elites using their superior abilities or resources to hijack deliberative processes in order to subvert deliberations and thus defend

[248] Specifically, by means of structuring experts themselves into pyramidal networks, or by inviting experts to participate in the deliberations of different groups or at different tiers of the pyramid.

their vested interests. If this occurs, as Cohen (2009: 255) notes, then those who can least afford it – those subordinated to power – would have wasted their time and resources by engaging in deliberation. While this is certainly a problem for periodic and loosely-connected face-to-face deliberation, it is less of a problem for deliberative networks for two reasons. First, deliberation would occur in multiple settings – in hundreds or thousands of groups spread over multiple pyramidal networks – making it less feasible that elites would be able to hijack the deliberative process as a whole. Second, where elite capture did occur, it may be reversible. Where abuses of power or poor representation became apparent, for example, citizens could recall their delegates. Thus, pyramidal networks, by virtue of their scale and structure, may be less vulnerable to elite capture.

The second criticism – that elites could simply ignore the outcomes of deliberation – is similarly mitigated by the scale and structure of pyramidal democracy. As we argue in the following chapter[249], pyramidal networks derive legitimacy and social power from their size and the activeness of the citizens that comprise them. If elites were to refuse to engage with the top-tier delegates of a large and active pyramidal network, then they might risk undermining their own legitimacy and bargaining position. Such a refusal might also provoke more citizens into joining the network, incrementally increasing the pressure of elites to respond and to engage. In this sense, then, pyramidal networks might, by nature of their scale and structure, mitigate the problem of elites ignoring the outcomes of deliberation.

The third criticism – that pyramidal networks might be vulnerable to malicious hacks – we have pre-empted already by suggesting that our bespoke application be decentralised by means of blockchain technologies. This would render the application secure and protect the identities of users, ensuring that the operation of the network could not be disrupted or manipulated. Given the scale and transparency of the process of compression, however, we might also expect citizens to notice if their communications and votes had been manipulated without their consent.

4) The feasibility and desirability of consensus: We can identify three criticisms here. First, that deliberation does not necessarily result in consensus and, if it does, this is achieved by majoritarian voting. Second, that, even if consensus is reached, it does not mean that the consensus necessarily reflects the best available option. Third, that consensus is not necessarily a desirable outcome of deliberation.

[249] We elaborate on this argument when we outline pyramidal democratic mechanisms. The core argument is that deliberative networks, augmented with certain functions, might enable citizens to engage with authorities and project social power by making social demands.

The first criticism – that consensus cannot always be reached – confuses the core function of deliberation as being the reaching of consensus rather than the instantiation of collective reasoning. Cohen (2009: 250) notes that deliberation does not necessarily end in consensus, and that "no matter how deliberative democracy gets" collective decisions will always be made under some form of majority voting. If majority voting is inevitable, we would argue, then meaningful deliberation prior to voting would help to make the outcome of voting a far more collective process of decision-making than would voting without deliberation. Thus, Cohen (ibid) notes that deliberative democracy is a particular interpretation of democracy, in the sense that, no matter how fair, how participatory, or how informed, democracy cannot be deliberative unless a process of collective reasoning is central to the outcome of decision-making. Even when consensus is not reached, therefore, outcomes under deliberative conditions might be more *effective*[250] because the participants to the decision-making process were all involved in a process of mutual consultation.

The second criticism here is that, even if consensus is reached, it may result in sub-optimal outcomes. Hardin (2009: 242) notes that consent does not necessarily make a decision "good or right". This is certainly true, but we can respond in two ways. First, we can draw attention to the epistemic function of deliberation, which we outlined in the previous chapter. Recall that, based on the Condorcet jury theorem, 'bad' decisions are less likely the greater the number of citizens that are involved in the decision-making process. In this sense, pyramidal networks might enable the "crowdsourcing" and broad-based comparison of a variety of sources of information. If consensus were reached, and predictions of the epistemic function are generally correct, then it follows that 'good' decisions would be far more likely than 'bad' decisions. Second, pyramidal networks might accelerate inter-network social learning by making it easier for citizens and top-tier delegates to communicate about common problems. This implies that bad decisions are likely to be replaced with better decisions, as citizens in one network learn from the citizens in other networks. Consensus does not imply, therefore, either that bad decisions are likely to be adopted or that bad decisions are irrevocable.

The third criticism is that consensus is not necessarily a desirable outcome. Mouffe (2000) criticises deliberative theorists for emphasising the possibility of rational collective consensus. She asserts that democratic theory needs to acknowledge the "ineradicability of antagonism" and thus argues for the recognition of "agnostic pluralism"[251] as the basis for understanding the function of democracy. The essence of the argument is that because we cannot always reach consensus, the main challenge for

[250] We mean effective in the sense that, even if I don't agree with a decision, I may support the implementation of the decision because I was part of a process of deliberation that took my concerns fully into account. If I simply voted and lost, I may not be as supportive of implementation.

[251] We return to agonistic pluralism in Appendix IV, when we consider consensus in terms of society more broadly. Here we are responding specifically to the idea of consensus within the deliberating group.

democracy is to create “democratic forms of identifications” that will contribute towards mobilizing “passions towards democratic designs” (6). As part of this argument, Mouffe criticises deliberative theory for being overly rationalistic and too closely aligned with a liberal conception of democracy, thus failing to recognise the role that ‘passions’ play in forming collective political identities. In the same theoretical tradition of agonism, Griggs et al 2014: (30) note that conceptualising democracy primarily as a set of rules, norms and institutions – as important as these are – risks neglecting the fact that democracy, at its root, is a “practical ethos of questioning and collective problem solving”. It is here, they note, that radical pluralism and a Deweyan pragmatic conception of democracy meet. For agonists then, democracy is less about consensus and more about enabling certain “practices of freedom” that help us to facilitate ongoing conflict in a positive way.

We can respond by noting that the objective of pyramidal deliberative networks and the process of compression is not necessarily consensus. We agree with Mouffe, and other agonists, that consensus is not the core function of democracy. Deliberative networks provide a space for the interplay of ‘passions’, and, when consensus cannot be reached, a space for active dissent. Overall, then, we agree with Hicks (2000: 254) that – although agonistic pluralism is suggested as an alternative to deliberative democracy – the distinction is not so great that we are required to make a choice. What is important is that pyramidal networks instantiate certain “practices of freedom”, practices that Griggs et al (2014) suggest is necessary for a full conception of democracy.

In conclusion, then, we argue that pyramidal democracy is a cogent response to the criticisms of pathology, equality, and effectiveness. While the problems that these criticisms invoke might continue to bedevil deliberative democracy as a pure theoretical concept, we would suggest that pyramidal networks might go some ways towards resolving them in practice. We would, of course, need to adapt the design criteria of our bespoke application if and when problems arose, but, overall, the criticisms levelled against deliberative theory do not undermine the feasibility of pyramidal deliberative networks.

Deliberative Theory Revisited

Mansbridge et al (2012) identify three phases of development in deliberative theory. The first phase – on the part of the first generation of deliberative scholars – was orientated towards definitions and foundational principles. One such foundational principle is that a decision is legitimate when, after meaningful deliberation, no one could reasonably reject the legitimacy of said decision. The second phase was characterised by a proliferation of empirical studies and practical applications of the theory. Many of these empirical investigations, however, resembled discrete laboratory experiments and were conducted and analysed with little attention to the broader democratic or deliberative system

in which they existed. The third phase, according to Mansbridge et al, is now characterised by an attempt to relate deliberative democracy to the democratic system as a whole, especially in the sense of determining whether or not a non-deliberative practice in one area of the system enhances or diminishes, overall, the effectiveness of the deliberative system in terms of the three functions of deliberation[252].

In this section, we argue that pyramidal democracy represents a potential fourth stage in the development of deliberative democracy theory. First, we argue that pyramidal democracy might enable the "radical democratic" project that always undergirded the first phase of development in deliberative thought. We make this argument by showing how pyramidal democracy solves the problems that have thus far prevented the implementation of this project. Second, we suggest how pyramidal democracy might rapidly accelerate empirical experimentation related to deliberation by means of our bespoke application. Third, we suggest that pyramidal democracy might allow for the broader delineation of deliberative systems. Finally, we suggest – given the relation of pyramidal democracy to the first three phases of development – that it represents a potential fourth stage.

A Radical Democratic Project

Cohen (2009: 247) notes that contemporary debate among egalitarian-democrats has "moved along two paths": the first based on asset-egalitarianism – universal basic income, or universal basic capital – and the other on a "radical democratic" project of participatory and deliberative democracy. In Chapter 9, we return to the idea of universal basic income, arguing that its instantiation is necessary for creating a "democracy-compatible economy" similar to the one in ancient Athens. For now, however, we focus on the second path.

This "radical democratic" project, as Cohen describes it, seeks to construct models of political decision-making in which "local players" are involved directly in regulation and collective problem-solving, with a centre that "coordinates local efforts" rather than "dictating the terms of those efforts". Moreover, a principle of subsidiarity is key, with local actors – be it citizens at a neighbourhood-, city-, or state-level – given the autonomy to experiment with "their own solutions" to "broadly defined problems of public policy". In return, they "furnish higher-level units" with "rich information" about their goals and progress. The "periodic pooling of results" reveals the defects of parochial solutions and allows for the

[252] Mansbridge et al (2012: 11-12) identify three functions of deliberation: epistemic, ethical, and democratic. The epistemic function is to produce preferences and opinions that are logically coherent and informed by meaningful consideration of all the relevant facts. The ethical function is to promote mutual respect among citizens. The democratic function is related to broad and equal inclusion, such that an "inclusive political process on terms of equality" is promoted.

comparison of different local achievements; exposing “poor performers” to criticism, and making good performers “models for emulation”.

Immediately we might see the relation here between this radical democratic project and the broad-based experimentation with solutions that is at the heart of a collaborative strategy for solving wicked problems.

This radical democratic project, Cohen (257-9) suggests, could be achieved by two approaches. The first approach is by joining “deliberation with mass democracy” (257), specifically by promoting citizen deliberation in the networks and associations that make up what Habermas calls the ‘informal public sphere’. The idea is that if people from all walks of life, and in all manner of institutions, began to deliberate – and these deliberations could somehow be linked to changes in policy – then the radical democratic project might be achieved. Two obvious problems arise with this approach (Problem 1, Problem 2): how do you get citizens to start deliberating *en masse* with one another, and how do you get politicians and governments to listen to them? The second potential approach is to harness the contextual and tacit knowledge of citizens in the formulation of policy by encouraging the use of consultative deliberative forums, like deliberative polls, citizen juries, planning cells, etc. Obvious problems arise (Problem 3) related to inclusion, practicality, equality, effectiveness, and pathology. No deliberative theorist, to our knowledge, has thus far been able to satisfactorily resolve these problems and thus make a radical democratic project feasible.

Pyramidal democracy, however, solves Problem 1 by democratising and ‘deliberatising’ the public sphere. A public sphere composed of pyramidal networks and democratic mechanisms would represent a “civic commons in cyberspace” (Coleman and Blumler 2009: 163). This would be a “democratic space” in two senses: first, in the sense of a recognised, accessible and trusted space, and, second, as the idea of “a space between” – a “sphere that is neither state nor market, neither incorporated within existing constellations of power nor detached from them”. Pyramidal democracy, then, might provide a space in which “civic energy is capable of affecting the terms and uses of power” (197). Moreover, pyramidal democracy is a practicable means of gathering people together within the public sphere – not as “spectators, followers or atomised egos” – but as a “*demos* capable of self-articulation”.

Pyramidal democracy, furthermore, allows us to utilize the public sphere in transforming raw public opinion into considered public opinion. As Chambers (2012: 70-1) argues, rather than dismissing raw public opinion, we should “thematise it in political debate” as a means of holding up “multiple mirrors to society” and in order to drive the process of meaningful deliberation and reason-giving. LeDuc (2015), similarly, suggests that referenda should be used for the same purpose. Chambers argues,

then, that compressing raw public opinion into its purer, condensate form – considered public opinion – would invigorate democracy if it could be fed somehow into the legislative and policy-formation process. Chambers does not suggest how this could happen, but pyramidal democracy – via compression and voting mechanisms – might provide us automatically with aggregate data on public opinion. Democratic mechanisms, moreover, might allow us to channel considered public opinion so as to "inform the legislative process". Pyramidal democracy thus operationalises Chambers' suggestion.

The democratisation of the public sphere by means of pyramidal networks, however, would not mean that face-to-face deliberative spaces would disappear or cease to be useful. On the contrary, we would expect face-to-face deliberative practices to become more common in several ways. First, the existence of a deliberative public sphere would stimulate "internal-reflective" deliberation (Goodin 2003); the debate and deliberation inside our own minds. If citizens generally had an expectation of taking part – at some point or another – in deliberative activities, then they would naturally begin to think more frequently and intensively about their positions and preferences. Second, a deliberative public sphere might encourage informal deliberation more generally between families, friends and co-workers. Although individuals would not necessarily be members of the same groups or networks – or even participate at all – the continuous creation of new pyramidal networks – as a result of the issue-attention cycle – might stimulate face-to-face debate among citizen on whatever issue happened to be 'trending'. Third, top-tier delegates might gain greater legitimacy the more popular, the more stable, and the more effective pyramidal networks became. We would expect, as a corollary then, that a greater number of top-tier delegates – and points of authority – would engage in public face-to-face deliberation. Thus, pyramidal democracy – by means of democratising the public sphere – goes some way towards solving Problem 1: how to get citizens to deliberate *en masse* with one another.

Problem 2 – that even if broad public deliberation were possible, it might proceed in "splendid isolation from the exercise of power" (Coleman 2009: 258) – is particularly difficult to overcome. Coleman and Blumler (2009) admit – when they suggest the creation of a civic commons in cyberspace – that it would ideally have to operate in "autonomy from the state" (116) but would also need to be "connected with government" (188) and be "publicly funded" (183). They articulate, therefore, a mixed message. Similarly, Cohen and Sabel (1997) rely on existing structures of power to authorize – upon certain triggering conditions – their idea of a directly-deliberative polyarchy that devolves power down to the local level. Or, in the radical democratic project that Cohen (2009) describes, local actors are "given" authority and, in return, they "furnish" higher level units with information. This

inconsistency in reconciling deliberative democracy – as a practical affair – with existing structures of power, is a recurring problem within the deliberative literature.

Pyramidal democracy solves this problem by linking deliberative activity directly with power. Local actors are not "given" authority in return for "furnishing" others with information. In pyramidal democracy local actors are inherently autonomous, and subsidiarity – the devolution of authority for solving a problem down to the lowest possible level – is an inherent feature of pyramidal design. Where "higher level units" exist, they are directly and democratically accountable to all citizens. Where power ignores or supresses the demos, citizens might become sufficiently aroused so as to create larger and more vociferous networks. At other times, mechanisms might allow citizens to work alongside pre-existing structures of power, being autonomous from the state but connected to it. Hence, to use Bohman's (2012) language, pyramidal democracy allows for the transformation of "minipublics" – representative groups of citizens with communicative freedom – to be transformed into "minidemoi" – citizens with the capability of projecting decisional power. In this, and other senses, then, pyramidal democracies solve Problem 2: how to get politicians and governments to listen to the deliberative output of citizens.

Problem 3 – that deliberative polling, citizen juries, etc, are vulnerable to criticisms related to inclusion, equality, effectiveness and practicality – follows from the basic fact that these deliberative 'micro-polities' can never truly project power or be truly representative. They tend always to have consultative roles and are dependent on pre-existing structures of power for their operation and legitimacy. In short, they are vulnerable to the general criticisms levelled against deliberative democracy, as we have covered in a previous chapter.

Pyramidal democracy, however, solves problems of inclusion and practicality by enabling the creation of hundreds or thousands of micro-polities. Each group in a pyramidal network could be thought of as a "deliberative microcosm", a "planning cell", or a "citizen jury". Pyramidal democracy also goes some way towards solving – as per our arguments earlier in this Appendix – problems of equality, effectiveness, and pathology. Pyramidal democracy, furthermore, might enable any citizen to participate in deliberation whenever the outcome of a decision had the potential to affect their basic interests; i.e. pyramidal democracy facilitates "optimal deliberation" (Shapiro 2003). By ubiquitously providing this opportunity – and the opportunity to revisit deliberations on any issue – pyramidal democracy further answers the question of how legitimacy is to be ensured when some, but not all, citizens participate in collectively decision-making.

Pyramidal democracy, moreover, enables self-organisation and self-articulation. In the words of Hardt and Negri (2005: 309), it represents a "new science" of society and politics, that defines how "all the

various singularities express themselves fully in the multitude". Although Hardt and Negri tend to speak in a manner reminiscent of lava lamps, scatter-cushions, and smoke-filled rooms, they articulate – in their conception of the 'multitude' – an important and useful concept. Unlike the "masses" or the "faceless proletariat", the multitude is an "open and expansive concept" (107) that designates "an active social subject which acts on the basis of what the singularities share in common" (100).

Although Hardt and Negri never provide a definition, we can define singularities as partially-amorphous human groupings or collectives, who are bound loosely together due to the "*common"* within them; a *common* that is not "so much shared but co-produced" (XV), especially by the act of labour and by the sub-conscious and growing realization that the societal divisions, traditionally created by culture and the division of labour, no longer apply (107). The multitude is the totality of all these loosely connected and overlapping singularities, made somewhat more substantial by the existence of "swarm intelligence" (91) and by the fact that networks tend to "transform every boundary into a threshold" (55), meaning that the multitude becomes increasingly aware of their own co-production of the *common*. Thus, the question to ask of the multitude is not "what is it?" but rather "what can it become?" (105). Given these definitions, then, we might see how any "new science" of society and politics must define how "all the various singularities express themselves fully in the multitude".

Hardt and Negri (XVI) admit that they have "no concrete program of action" to instantiate a new science of democracy, but we would argue that pyramidal democracy is just such a program or new science of democracy. The more that deliberative networks help to 'map' communities of practice, and the more that broad configurations enable these communities to form communities of interests and purpose, then the greater the possibility for the broader communication and co-production of the *common*. Deliberative networks may therefore be the means by which the singularities – citizen collectives with a growing but sub-conscious realization of a shared destiny – express themselves within the multitude.

We would argue, therefore, that pyramidal democracy has the potential to solve Problems 1,2 and 3 and thus makes the implementation of the radical democratic project feasible. Pyramidal democracy might help, then, to realise the foundational principles that undergirded the first phase of development in deliberative theory.

Empirical Investigation

Mansbridge et al (2012) characterises the second phase of deliberative theory as consisting of a proliferation of empirical studies and practical applications of deliberative theory. Many of these empirical investigations, however, resemble discrete laboratory experiments that are conducted and

analysed with little attention to the broader democratic or deliberative system in which they exist. Our evaluation of the empirical literature, in Chapter 4, supports this claim. Although experimental results are generally positive, it remains difficult to replicate the deliberative process in society more broadly without incurring massive costs and/or without requiring continuous oversight.

Pyramidal democracy might solve both these problems by nature of its scalability and structure. The broad-based formation of pyramidal networks and democratic mechanisms could therefore provide academics with a wealth of qualitative and quantitative data, directly driving the development of new knowledge and theory. This work could, in turn, facilitate the adaptation of our design criteria and the development of new configurations and rulesets, ensuring more perfect alignment, over time, of our bespoke application with deliberative theory.

Thus, what we are suggesting here, is that pyramidal deliberative networks may provide "big data" related to deliberation that may accelerate progress in other fields, not least in the field of deliberative theory. We must be cautious, however, of technological solutionism – we are not suggesting that big data is a silver bullet and it may engender as many problems as it solves (boyd and Crawford 2012 (sic)). We are suggesting that the broad-based adoption of deliberative networks by means of our bespoke application – especially if such an application were developed as an opensource project – would generate an unprecedented quantity of data related to deliberation. If this data were openly available by means of an API[253] – like with Twitter – then any academic in any part of the world would be able to use said data for research purposes. Pyramidal democracy might then accelerate the empirical research that characterises the second phase of development in deliberative theory.

The Deliberative System

The third phase of development is characterised by attempts to relate deliberative democracy to the democratic system as a whole, especially in the sense of determining whether non-deliberative practices in one area engender positive deliberative practices in another area. Mansbridge et al (2012) thus speak of society as a deliberative system – or as a series of deliberative systems – with many components that operate either in deliberative or non-deliberative ways.

This systems-thinking approach to deliberative theory, then, is premised on an understanding of the relationship between different components: how deliberative or non-deliberative practices in one component relate to practices in another component. When a component is examined at a local level, for example, the component may seem to perform poorly in terms of inclusion, equality or the

[253] An Application Programming Interface. This allows third parties to 'query' the Twitter database and return specific datasets.

deliberative ideal. When considered from a higher-level systems perspective, however, we might see that – as a result – the system as a whole performs better.

Take, for example, a hypothetical religious organisation based on a strict and authoritarian gerontocracy that contests an election as a political party. We might assume that this party ranks poorly in terms of the deliberative ideal, especially if it were widely accepted that diversity of opinion within the party was not tolerated. We might then think that this organisation *diminished* the quality of the deliberative system. Because these shortcomings were apparent to the broader citizenry, however, meaningful deliberation might be increased across the system as a whole. Thus, we might find, from a systems perspective, that in "any given actually existing political situation" the levels of civility may have to "go down" in order for "levels of inclusion to go up" (19).

Thus, even if pyramidal democracy enables 'extreme' groups of citizens – neo-Nazi hate groups come to mind – to organise, to formulate a single voice, and to project power, this does not necessarily mean that the quality of the deliberative system is diminished as a whole. Thus, the existence of a neo-Nazi pyramidal network in one part of the system – rather than being totally undesirable – might help to consolidate deliberation and citizen cohesion in other parts of the system. We should therefore be wary of trying to exclude 'undesirable' citizens, bearing in mind Mouffe's (2000) warning that doing so might make deliberative democracy a tool of oppression rather than emancipation. In this way, we should not be immediately concerned about the potential for 'extremist' pyramidal democracies, although vigilance and the continuous adaptation of design criteria remains, of course, necessary.

Mansbridge et al (2012: 22) identify five pathologies that generally prevent "political institutional arrangements" from more closely approaching the deliberative ideal in the system as a whole: tight-coupling, decoupling, institutional domination, social domination, and entrenched partisanship. First, a system is too tightly coupled when the people and institutions that make up that system are unable to self-correct errors in each other's' reasoning, a kind of "group-think writ large, at institutional scale" (23). Mansbridge et al use the example of the US internment of Japanese Americans during WWII, a decision that today we consider not wholly justified. Second, a system is too loosely coupled – or decoupled – when deliberation in one component of the system should, but does not, influence deliberation in another part of the system. For example, the deliberations of some interest groups and legislators has become decoupled from the scientific consensus on climate change. Third, a system fails when one part dominates all other parts, as might occur in authoritarian regimes or where media ownership is highly concentrated. Fourth, social domination might occur when one group – the very wealthy, for example – exert undue influence on many of the components in the system as a whole.

Finally, the system fails when citizens or legislators are so divided by, for example, ideology or ethnicity, that they refuse to listen to the position and arguments of other groups.

Pyramidal democracy, although not necessarily solving all these problems, may allow us to identify when and where they occur. This is especially feasible when different deliberative systems can be quantitatively and qualitatively analysed by means of empirical research and big data analysis. Thus, given a deliberative system composed of deliberative networks and democratic mechanisms, we might see how it would be easier to identify problems associated with coupling, domination, and partisanship. Academics and experts, for example, organised by means of networks and wheel configurations, might help to identify when and where loose coupling occurred. If deliberative networks enabled citizens to project social power, then we might expect problems of institutional and economic domination to be diminished. Finally, if we assume that the majority of citizens are more interested in effective problem solving then in partisan political divisions, then it may become possible to overcome entrenched partisanship by dismantling the party cartel system and by empowering the moderate and independent voters.

Thus, we argue that pyramidal democracy has the potential to operationalise a systems-thinking approach to deliberative theory in at least two ways. First, by allowing the relationship between deliberative and non-deliberative components in society to be systematically analysed. Second, by revealing and helping to mitigate pathologies in deliberative systems.

By way of conclusion, then, we suggest that pyramidal democracy represents a potential fourth stage in deliberative theory for four reasons. First, as we have seen, pyramidal democracy may enable the implementation of a "radical democratic" project that would empower citizens in their own self-governance. Second, pyramidal democracy might rapidly accelerate empirical investigations related to deliberation. Third, pyramidal democracy might enable the relationships between components in a deliberative system to be mapped, and thereby the identification and mitigation of various pathologies. Fourth, pyramidal democracy would thus be both part of a deliberative system and a *deliberative system* itself – a system with well-defined actors, components, functions, and procedures. The development and deployment of such a system, we suggest, would constitute a fourth stage in deliberative democracy theory; a "new science" of society and politics.

DEMOCRATIC THEORY REVISITED: PERENNIAL PROBLEMS

In this section our objective is to outline how pyramidal democracy relates to various perennial problems or general concerns in democratic theory. It is not our intention to make any bold statements about how pyramidal democracy might resolve these problems. We are concerned, rather,

with showing that we are alive to these problems and suggesting some ways in which pyramidal democracy might resolve or engender these problems.

In general, we would suggest that pyramidal democracy might play an important role in overcoming many of these issues, but only time and experimentation will tell. In this sense we can remain generally agnostic about how the broad-based instantiation of pyramidal democracy might impact on society. We deal with the problem of participation and the problem of tyrannies of the majority in Chapter 6. Here we deal with the relation between pyramidal democracy and representation, ideology, false consciousness, consent, and consensus.

Preferences, Interests and Representation

At the heart of the idea of representation is a contention between the idea of the representative as *trustee* and the representative as *delegate* (Dovi 2017: 2) or, in other words, the representative as being *independent* or as having a direct *mandate* (Pitkin 1968). An independent representative would follow her own judgement about how best to represent her constituents' *real* interests, even if her perception of those interests conflicted with the actual articulated preferences of her constituents. A mandate representative would be beholden to act in accordance with the articulated preferences of her constituents, no matter what she perceived their real interests to be. Thus, the problem in representation theory is really about the conflict between articulated preferences and 'real' interests (Pennock 1968; Diggs 1968). Pitkin (1968: 40-41), moreover, suggests that this problem is inherently paradoxical because representation implies that a "thing be both present and not present at the same time"; i.e. that the constituents are both present and not present when their representative acts to represent them.

Our first point here is that representation in pyramidal networks is a variable and co-constitutive process. At every level of the pyramidal network, groups of citizens decide, on a case-by-case basis, actively or passively, whether their delegate should be more or less independent. Simultaneously, delegates make the same determination – involving their constituents in decision-making on a case-by-case basis and depending on their own personal conception of the extent of their mandate. Whenever citizens felt that their delegate was too independent or not independent enough, they would be able to express these concerns directly to the delegate in question. Thus, representation would be variable and co-constitutive. In some pyramidal networks, top-tier delegates might be completely independent while in others they would have strict mandates. We would likely see, moreover, great variability within large networks, with some groups frequently interacting with their

delegates while others gradually became moribund[254]. Representation in pyramidal networks thus might resolve, to some degree, the paradoxical tension between the two different conceptions of representation.

Our second point, and following from the first, is that pyramidal networks might provide a space by which citizens – in collaboration with their peers and delegates – might discover, develop, and co-constitute their preferences, desires, and interests[255]. The role of delegates in pyramidal networks, in this sense, might also be to formulate claims about the preferences and interests of their constituents and then present those claims to those constituents – their 'audience' – for authorization, rejection, or modification. This would constitute, then, a constructivist approach to representation, as outlined by Saward (2006). The greater the efficacy of pyramidal networks in this regard – i.e. the co-construction of preferences and interests – the greater the possibility of an appropriate match between the expectations of citizens with regard to their delegates and the performance of those delegates over time. Pyramidal democracy, in this sense, suggests an understanding of representation as a process and not as a status; a "process of mutual interaction which creates the similarity of the policy of the government and the attitudes of the people" (Sobolewski 1968: 107).

There is a danger, of course, that citizens articulate preferences that are not in their 'real' interest and, thus, select delegates who are most responsive to representing these sub-optimal preferences in policy. There is a danger also that delegates guide the development of sub-optimal preferences that are not in the real interests of citizens; i.e. that delegates engender a negative 'thin' kind of populism. There is a danger then, in pyramidal representation, of both tyranny majority, populism, and policy outcomes that are self-defeating. We return to these problems in a later section.

Out third point is to suggest how different forms of representation might be reconciled by means of pyramidal networks. To do this we must outline Pitkin's (1967) influential schema of four different ways in which political scientists conceptualise representation:

> **Formalistic** representation focuses on the institutional basis for how citizens authorise the representative and how the representative is made accountable to citizens. As may

[254] Thus, we have noted the importance of 'refreshing' the pyramid from time to time: requiring participants to confirm their commitment and engagement or else renounce their membership in the network (Appendix II).
[255] Preferences are akin to 'wants', desires are the desire to satisfy those wants, and interests are – *objectively* speaking (we must be aware of the difficulty here of objectivity) – whether or not it is in the individual's interests to have a given want or desire fulfilled (Geus 1981). In this way, a partially reformed alcoholic may have a want and desire for drink, but also an interest in the "non-satisfaction of their wishes and desires" (46). The idea of 'real interests' thus enters the conversation: to what extent are the articulated preferences of citizens in their actual 'real' interests? Hence, should the role of representatives be to represent preferences or interests?

be apparent, formalistic representation focuses on the processes of authorisation (elections) and processes of sanctioning (the recourse citizens have to ensure accountability).

Symbolic representation focuses on the meaning that the representative embodies for the represented. The standard for evaluation is thus the "degree of acceptance that the representative has among the represented" (Dovi 2017: 4).

Substantive representation relates to the extent to which the representative advances the policy preferences and serves the interests of those who are represented.

Descriptive representation focuses on the extent to which the representative resembles the represented, in physical appearance, common interests, and shared experiences. This kind of representation becomes important for minority groups who have reasons to distrust representatives who are dissimilar to themselves.

As Dovi (2017: 3) notes, this schematic overview has generally set the terms of contemporary debate in representation theory. Moreover, there is generally a "lacunae in the literature" as to how formalistic representation relates to descriptive and substantive representation (11). In pyramidal networks we can articulate this relationship as follows:

Representation becomes formalistic when top-tier delegates assume formal power, with rulesets and constitutions determining the procedures by which delegates are authorised and sanctioned. Simultaneously, however, the reflexive legitimacy of the pyramidal network derives from the extent to which symbolic representation is present; the "degree of acceptance that the representative has among the represented". Substantive representation, moreover, is the basis by which citizens determine whether delegates are performing appropriately and thus whether or not to use formalistic procedures to sanction or recall them. Descriptive representation, finally, may be the means by which delegates are selected for at each tier and, perhaps, how voting blocs are formed[256]. We would thus suggest that pyramidal networks demonstrate clear linkages between the different aspects of representation.

Our fourth point relates to three persistent problems in the theory of representation (Dovi 2017: 9): 1) the proper institutional design for representative institutions; 2) the manner in which citizens can

[256] Pseudonymity, however, may work against this tendency for better or worse. In one sense, we might want to avoid a tendency towards identity politics, especially when such politics occludes the articulation of interests that were generally shared. However, especially when it comes to community-level or state-level networks, it may be beneficial for voting blocs to form that were truly representative of minorities who are or have been suppressed or underrepresented.

be marginalised by their representative institutions; and 3) the relationship between representation and democracy. Regarding institutional design, pyramidal democracy constitutes a new system that reconciles, not only mass engagement with deliberation, but also these with a variable and co-constitutive form of representation. If this design is successful, then problems related to proper institutional design may be resolved. Regarding marginalization, the problem – best exemplified by Young (2000) – is that the one-to-many process of representation can improve the representation of some groups and interests, but at the expense of other groups and interests[257]. Pyramidal networks, by distributing representation more broadly, may help to solve this problem. Regarding, representation and democracy, Dovi (2017: 10) notes that, for much of history, representation was framed as being *in opposition* to democracy, and that even today it is not clear what makes any given form of representation "consistent" or even "consonant" with democracy. Pyramidal democracy, by distributing representation and by instantiating deliberation, might go some way towards resolving this problem.

Ideology and False Consciousness

Ideology is one of the most elusive concepts in the whole of social science (McLellan 1986: 1), and it certainly is not our intention here to delve too deeply into the concept. One of the obvious pitfalls in such a discussion is that any treatment of ideology is, itself, ideological to some extent (2). Our objective then is to tentatively outline the potential relationship between pyramidal democracy and two types of ideology (Geuss 1981): ideology in the pejorative sense – i.e. false consciousness – and ideology in the positive sense – i.e. a set of worldviews, models, and goals that would most satisfy the needs, wants, desires and interests of a given group. Our objective is therefore to suggest how pyramidal democracy might overcome the effects of the former type and, in doing so, give rise to the latter type.

In one sense, and drawing from Marx and Engels, we might suggest that the interrelated crises of the 21st century are the result of a dominant ideology, the most likely suspect being an untrammelled belief in the efficiency and inevitably of a perfectly-competitive market-based society. Under this line of reasoning, and if we accept that this ideology is not in the interests of most citizens, then its perpetuation must be due to some measure of false consciousness. It is not our objective here to defend this claim, but rather to suggest that, if it *were* the case, that pyramidal democracy might assist in overcoming false consciousness.

[257] In other words, a minority may gain a representative and thus rejoice that 'one of their own' has been elevated to power. But the one-to-many structure of representation means that the interests of some of the subsections of the minority may now go completely unrepresented; the chosen representative is not representing 'a minority' rather than the actual interests of the constituent members of that minority.

We can define false consciousness as "the holding of false or inaccurate beliefs that are contrary to one's own social interest and which thereby contribute to the maintenance of the disadvantaged position of the self or the group" (Jost 1995: 400). Thus, if the dominant economic paradigm of limitless growth embodies an ideology that is contrary to the 'real' interests of the majority of citizens, and those citizens are agents in the perpetuation of that ideology, then some level of false consciousness is likely to be present. Jost, in an analysis of the literature, identifies six basic types of false consciousness: 1) failure to perceive injustice and disadvantage; 2) fatalism; 3) justification of social roles; 4) false attribution of blame; 5) identification with the oppressor; and 6) resistance to change. We can condense these types into two broad categories: failure to perceive injustice and failure to initiate change.

Under the umbrella term 'failure to perceive injustice' we can include a failure to perceive social injustices, a failure to recognise a disadvantaged status, a failure to attribute blame for injustice, and identification with oppressors. The key mechanism in these phenomena seems to be cognitive dissonance. In other words, if citizens accepted that the world is inherently unjust or that they are systematically disadvantaged, then they would need to accept that they were unable to control their own destinies or the outcomes of their own agency. It is thus psychologically 'easier' to accept injustice by failing to recognise it or by internalising it as a natural state of affairs. This is perhaps exemplified in the fact that citizens are more likely to accept injustice if they have had some role in the procedural systems that engendered the injustice; i.e. they accept unjust outcomes even if they had some role, however ineffectual, in the decision-making process[258]. What is important here is the suggestion that, even if people recognise that they are systematically disadvantaged, they will "not take action against the source of the disadvantage unless they perceive that their entire social group is in a state of relative deprivation" (Jost 1995: 405, citing Guimond and Dube-Simard 1983 and Walker and Man 1987).

Hence, one of the key ways in which pyramidal democracy might help to overcome false consciousness is by systematically drawing citizens' attention to commonly shared problems and discontents. If the democratisation of the public sphere by means of pyramidal networks is feasible, then we might expect inter- and intra-group comparisons of such problems and discontents to accumulate. Over time, then, and given that democratic mechanisms began to demonstrate the potential of collectivised social power, we might expect cognitive dissonance to dissipate as new possibilities became apparent. But there is also a danger lurking on the horizon: pyramidal networks might also channel this discontent in such a way as to amplify false consciousness, leading to projections of social power that

[258] Periodic voting under an equilibrium model of democracy may be a case in point.

penalised groups who were 'other' to the group in question; immigrants and minorities being a case in point. Only time will tell whether these negative outcomes would actually arise, or, rather, the extent to which such outcomes would be attenuated by more positive outcomes in other parts of the deliberative system as a whole.

The second broad category of false consciousness is a failure to initiate change. The key mechanism here is fatalism – that protest is futile, embarrassing, or exhausting – or "cognitive conservatism" (Greenwald 1980) – a tendency to adhere to the current status quo, even though outcomes may be better under some new, but untested, state of affairs. Under these conditions the status quo is perpetuated and social injustices, therefore, continue to be internalised due to cognitive dissonance. Inequalities in power, engendered by the dominant ideology in question, help to perpetuate these pathologies and thus engender feedback loops that further prevent new systems from being adopted.

Pyramidal networks might help to break this cycle in two ways. First, broad-based participation in pyramidal networks might instantiate a counter-consciousness that incrementally contraindicated – worked against – fatalism. The more that democratic mechanisms proved successful, the less futile protest would appear. The greater the numbers of citizens who comprised pyramidal networks, the less embarrassing protest would become. And the more that citizens at higher-tiers undertook the full-time responsibility for protest, the less exhausting it would become. Second, and perhaps more importantly, pyramidal democracy might gradually enable citizens to engage in broad-based social experimentation, by developing, deploying, and iteratively testing innovative solutions to social problems. The more that such experiments proved successful in various and disparate locales, the more likely that cognitive conservatism might be overcome, leading citizens to look more favourably on adopting similar solutions in their own communities and societies. In this way, then, pyramidal democracy might, at certain thresholds, engender its own feedback loops that incrementally undermined the ideologies that gave rise to false consciousness.

These possibilities of overcoming false consciousness become more feasible in direct proportion to the development and adoption of an overarching 'positive' ideology: one that provided a set of worldviews, models, and goals that best embodied the satisfaction of the needs, wants, desires and interests of citizens. In Chapter 8 we suggest various components of a democratised global economy that might constitute such a positive ideology. Whether or not these components are ideological – or, more to the point, whether or not they constitute a feasible and desirable ideology – is something that the reader must decide for themselves. Whatever the case, we would suggest that the components represent, if not an ideology, then a new paradigm. After Kuhn (1962), then, we would suggest that pyramidal democracy might engender a paradigm-shift that entails new conceptions of

how citizens relate to one another in a globalised world. In Chapter 10 we suggest exactly how pyramidal democracy might enable this paradigm-shift.

Overall, then, we would argue that pyramidal democracy has the potential to dissipate false consciousness and, in doing so, develop more positive ideologies. At the same time, however, we must also acknowledge that pyramidal democracy has the potential to amplify and channel those attitudes that are the most pernicious manifestations of false consciousness. Only time will tell the extent to which negative outcomes can be overcome by positive developments.

Consent

As Partridge (1971: 9-10) notes, the idea that governments "ought to be founded on the consent of the governed" and that only governments which "enjoy the consent of their subjects possess rightful authority and can legitimately demand or expect obedience" is an idea that we generally think to be an essential part of the democratic position. There is, however, a difference between consent and consensus. While the term 'consent' has a moral or prescriptive overtone, the term 'consensus' is more purely descriptive – it refers to "processes or relationships which are empirical constituents of the structure of a society" (71). In this section our objective is to outline the first concept, consent, and suggest how it might relate to the broad-based instantiation of pyramidal democracy within society.

As Partridge (1971: 59) notes, the question of explicit consent has generally been avoided by political theorists and, as such, the idea of 'consent of the governed' has come to be synonymous with the "more general concept of democratic government". Thus, due to problems of scale, it has generally not been feasible to seek, from citizens, explicit consent to be governed under specific rules and conditions. Pyramidal democracy, in solving the problem of scale, may change this state of affairs. Our first insight is, therefore, that the broad-based adoption of pyramidal networks might allow for the expression of explicit consent.

The most prosaic means of measuring consent would simply be to ask those citizens who comprised a state-level network, 'do you consent to be governed?'. The results would likely be too multivariate to warrant any fruitful speculation, and thus we do not attempt to speculate on those results here. The important point is that the question *could* be asked, and that the ultimate value in asking it would be found in the swathe of contradictory, but aggregable, answers we would receive. In this way, asking the question might bring to light various *topologies* of consensus, dissensus, and dissent that characterised the society in question. It would thus help to give some answer to whether or not citizens did, indeed, consent to be governed in the way that they were, and furthermore help to delineate the contours that separated consent from dissent.

Moreover, the results would probably be more fruitful in direct proportion to the scale at which the question was asked: 'do you consent to be *locally* governed?'. By reducing the scale implied in the question we are more likely to accumulate answers that relate to the practical problems of governance rather than to any substantive problems with the *idea* of governance itself. Our key point here is that, because pyramidal democracies enable the question to be asked, it might be possible to link the consent of citizens directly to their own governance. This might then set a precedent for increased engagement and thus the participation of citizens in a cooperative and iterative process of problem-framing and solution-testing; a process, therefore, of cooperative social experimentation. If pyramidal democracy could facilitate explicit consent, therefore, then it might help to engender a transition towards more active self-governance.

On the other hand, the capacity to explicitly gauge consent might lead to a series of intractable problems. As Partridge (1971: 147) suggests, if broad-based participation in delineating consent were feasible, then it might lead to the proliferation of 'veto groups' who frustrated one another by means of a "pattern of checks and balances" that produced "dissidence rather than a higher level of consent". In this way, too much leniency in formulating the conditions and rules of governance may lead to an intractable stalemate. This might especially be the case for formalised pyramidal democracies – i.e. pyramidal democracies at the local or state level with formal power – which would require codified constitutions[259] that embodied the consent of citizens. It might prove impossible for citizens to agree on the content of such constitutions, and thus impossible for formal pyramidal democracies to develop. Whether or not such stalemates would occur, however, is not something that we can determine prior to experimentation.

Consensus

Perhaps the more pertinent issue, however, is the relationship between pyramidal democracy and consensus. There are two issues we need to deal with here. First, is the question of whether or not pyramidal democracy is a 'consensus' model of democracy. Second, is the question of how pyramidal democracy might facilitate more or less consensus in a given society and what the implications of that might be.

[259] Drawing on Gewirth, Partridge (1971: 56) notes that the fundamental question is not "Why should I obey the government", but rather "What kind of government should there be?". Practical considerations aside, then, it follows from a theory of consent that "'every sane, non-criminal adult' must have the opportunity to 'discuss, criticise and vote for or against' the constitution" (56-57). But governments may be paralysed if the "machinery by which [they] are chosen, constituted and carried on were itself frequently the subject of disputation and decision" (58). From a substantive theory perspective, we would tend to agree that citizens have a right to determine the contents of their own constitutions, but we must also accept that implementing this right may create fundamental instabilities.

First, pyramidal democracy is not a 'consensus' model of democracy. In other words, consensus is not required or expected in order for the model to remain coherent, either in theory or in practice. The delegates in a pyramidal network are not required to reach consensus in order for the process of compression to proceed. If compromise could not be reached for a given group, then we run the risk of some voices being silenced, at least temporarily. Only experimentation will tell the frequency and context under with compromise is not reached. More to the point, we should not be particularly concerned if there is substantial dissensus among the top-tier delegates of a pyramidal network[260]. For our purposes, we need only note that pyramidal networks that exhibit sustained dissensus over long periods of time might struggle to project social power; i.e. intractable disagreement would diminish reflexive legitimacy. Under these conditions, the citizens that comprised the network would need either to reach greater consensus, or else reconstruct or reframe the problem in some way.

In this sense, we might then agree with Mouffe (2005) who argues that deliberative democracy – at least the Habermasian and Rawlsian versions – place too much emphasis on deliberation as the means by which the tension between equality and liberty can be resolved. For Mouffe, the fundamental problem with deliberative democracy is that it is premised on a type of rational argument that ignores background conditions of power and instead grounds legitimacy on "pure rationality" (100). Rawls's original position and Habermas's ideal speech situation, for example, are both theoretical devices that ignore real-world conditions of power and instead posit that, while the plurality of values in the private sphere may be irreconcilable, those that constitute the public sphere can be reached by a process of hyper-rational deliberative public reasoning between equals. For Mouffe, the ideas that "power could be dissolved" by means of rational debate and that "legitimacy could be based on pure rationality" are "illusions which can endanger democratic institutions" (104).

Mouffe suggests instead that the democratic ideal be conceived in terms of "agonistic pluralism". While 'antagonism' is conflict between enemies, 'agonism' is a struggle between adversaries. The objective of democratic politics, therefore, should be the transformation of antagonism into agonism; of enemies into adversaries. In this way, the 'them' in 'us and them' is no longer perceived as an enemy to be destroyed but as an adversary to be engaged with, somebody "whose ideas we combat but whose right to defend those ideas we do not put into question" (101). Thus, because conflict and

[260] Pyramidal democracy as a model is 'agnostic' about these kinds of outcomes. In this sense the model doesn't 'care' whether there is consensus or dissensus, or whether outcomes are 'good' or 'bad'. So long as pyramidal networks are broadly inclusive and no fundamental barriers to meaningful participation exist, we can maintain this agnosticism because the model can reconcile mass engagement with democracy. In other words, because we can include citizens in decision-making at scale, we do not have to make certain hard choices about what outcomes should or should not be; citizens will generally get, in this sense, what they deserve.

dissensus are ineradicable, the objective of democracy should be to manage dissensus in a constructive manner, and not to seek some illusionary consensus divorced from the actual distribution of power in the real world.

We can thus think of pyramidal democracy far more in terms of agonistic pluralism, rather than in terms of some hyper-rational process that generates consensus in the public sphere as the basis for legitimacy. Because pyramidal democracy is a practicable model, we have little need for theoretical contrivances or substantive positions; pyramidal democracy will be whatever citizens make of it.

So, to answer the second point – what is the relationship of pyramidal democracy to actual consensus and dissensus in society – we must acknowledge that our model has the potential to generate both significant consensus and dissensus; the relative value of which may be difficult to discern from the outside. As Partridge (1971: 86) notes, it is reasonable to assume that a high measure of consensus – especially in the sense of a "widely shared adherence to a set of basic values and objectives" – is a necessary condition of stability. At the same time, the right to dissent, to stand out "against that of which one disapproves" (69), is also a source of stability. Thus, the stability of democratic societies might be attributed to a balance between consensus and dissensus.

Pyramidal democracy might, then, variously reinforce or undermine that stability. Too much dissent – especially over foundational principles – may destabilise societies. But too little dissent – measured by the preponderance of apathy, 'tacit consent', manipulated acquiescence, socialisation, or traditional or habitual behaviour – may reinforce the dominant ideology or structure of power, engendering the pathologies of false consciousness. Moreover, too much consensus – especially in relation to an ostensibly 'positive' ideology – may lead to a tyranny of the majority. The extent to which pyramidal democracy will engender the 'right' balance between consensus and dissensus is unclear. Only experimentation will tell.

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Thus, in conclusion, it would be premature to form any clear conclusions as to the relationship between pyramidal democracy and the perennial concerns of democratic theory. In general, there is a potential for pyramidal democracy to both ameliorate and exacerbate problems. In this sense, pyramidal democracy might enable 'thin' populism, self-defeating policies, the perpetuation of negative ideologies, destabilising dissensus, and tyranny of the majorities. On the other hand, pyramidal democracy might also enable citizens to co-constitute their preferences and interests with their peers and representatives, enable political representation to become more variable and distributed, enable the dissipation of false consciousness and the construction of positive ideologies,

the establishment of broad-based consensus and healthy dissent, and the development of shared sets of values across different communities and nation-states. Only time will tell the extent to which the positive outcomes of pyramidal democracy will outweigh the negative outcomes.

LIQUID DEMOCRACY

In this section we briefly examine an alternative model to reconciling democracy with mass engagement: liquid democracy. Liquid democracy is a "procedure for collective decision-making that combines direct democratic participation with a flexible account of representation" (Blum and Zuber 2016: 165). Liquid democracy is practiced primarily in Argentina (The Net Party), Spain (Podemos) and in Germany (The Pirate Party), by means of bespoke applications (DemocracyOS, Lumio, and LiquidFeedback).

The primary characteristic of liquid democracy is "transitive proxy voting" (Bertone et al 2015): participants can delegate their 'voice' to any other participant, authorising them to both make proposals and vote on proposals on their behalf. This delegated authority can be withdrawn at any time. Participants also have different 'voices', moreover, for different themes or issue areas. In this way, a participant might delegate their vote on economic issues to a friend, who may be an expert, but retain their vote on environmental issues, in which they might have a particular interest. Finally, a participant who has attracted the delegated votes of other participants can, in turn, delegate all of those votes to another participant. The idea here, then – the 'liquid' in liquid democracy – is that voting power can filter from citizens who have low interest or knowledge in one area to citizens who have high interest and knowledge.

Liquid democracy applications are issue and initiative-based, meaning that any citizen can propose an initiative (a public works project, for example) related to a specific issue area (local government, for example) and any number of citizens can then discuss and vote on the proposal. Similar to our bespoke application, all proposals are structured by means of a "deliberation path" (Bertone et al 2015): proposal admission (creation); discussion; verification (freezing of initiative editing); and voting. Transitions between stages occurs either when a set duration expires, or when a prespecified quorum is reached. We should immediately see the resemblance of this process to compression.

In what follows we outline nine key differences between liquid democracy (LD) and pyramidal democracy (PD).

Deliberation: PD is premised almost entirely on deliberation while LD is premised almost entirely on delegation. In PD, the function of delegation is to better represent the considered views of a group of citizens, views that are arrived at by means of deliberation. Thus, in PD, deliberation is prior in

importance to delegation because the latter is not possible without the former. In LD, the function of delegation is to streamline decision-making by giving more weight to experts or individuals with a special interest in the issue at hand. Deliberation does not necessarily play a primary role. This is emphasised by the dyadic (yes/no) nature of the LD deliberative forum: participants choose either to support or not to support an initiative. In PD, support or opposition is an integral and organic outcome of the deliberative process.

Blum and Zuber (2016) argue, however, that the model of liquid democracy should be expanded to include: 1) a trustee role for delegates; 2) elements of deliberative democracy; and 3) an executive with oversight. These suggested modifications are in response to two core problems of LD: unequal voting power and policy-inconsistency[261]. PD solves the first problem by equalising voting power, and solves the second problem by requiring top-tier delegates – especially when duly authorised – to monitor and evaluate the practicability of initiatives.

Learning: PD – after J.S. Mill and Dewey – is premised on the idea of creating 'schools for citizenship' where citizens learn to deliberate and are acculturated into a society premised on increased political participation. As many participatory theorists argue, participation begets participation. For PD, the problem of "citizen education" – if we can use such a term – is how best to empower citizens to deliberate effectively, increase their contextual knowledge, reach well-reasoned decisions, and then project power. LD, on the other hand, understands this problem as one where citizens lack specialised knowledge, or lack the time or interest to acquaint themselves with specialised knowledge, and thus the problem is solved by delegating votes to those with better expertise. As (Peters 2017) notes, LD solves the "problem of education" by allowing a citizen to delegate their voting power to someone with better knowledge. Thus, while PD emphasises education for active citizenship, LD emphasises streamlined decision-making, albeit in a democratic and deliberative way.

The Public Sphere: PD is premised on the *systematic and cohesive* democratisation of the public sphere, while LD seems premised more on the democratisation of the political sphere (parties and government). In other words, PD makes it possible, through democratic mechanisms and wheel configurations, to convert issue-publics – originating from any geographical, economic or political base – into coherent and fully interoperable political units. For example, a scientific community with expertise in climate science, which is organised into a pyramidal network, becomes a coherent unit that can interact within multiple wheel configurations. This would allow, then, the deliberated and

[261] Unequal voting power because some participants can collect a great deal of voting power. Policy-inconsistency in the sense that citizens might select two different initiatives, in two different issue areas, that may be in conflict. If citizens are not connected in some way, perhaps by some kind of designated authority, then this problem may go unresolved.

considered opinion of an entire community of practice to weigh in on areas ranging from peer-review, to corporate citizenship, to transnational climate policy. While LD allows for individual experts to gain greater weight in decision-making through the transitive delegation of votes, it does not seem well designed for the systematic democratisation of the public sphere.

Structuration: PD allows for the instantiation of new structures of political representation and for new political systems, while LD is premised on pre-existing structures. Thus, deliberative networks and democratic mechanisms are new kinds of political structures that result, organically, from the underlying logic of pyramidal networks themselves; i.e. brought about because top-tier delegates with a clear mandate automatically derive from a process of iterative deliberation, compression, and delegate selection. These structures, once formed, are inherently capable of projecting – or attempting to project – power, a new kind of power derived from the broad-based democratisation of the public sphere. LD, on the other hand, does not seem to offer a clear strategy of how its underlying logic would/could result in the projection of power unless LD can be harnessed to the pre-existing traditional party-political system. While LD enables a direct or delegated vote on any issue, it does not immediately create any new kind of political structure for projecting power.

In other words, the challenge for PD is attracting an active and growing userbase, while the challenge for LD is "winning elections" (Peters 2017), as seen in the examples of the Pirate Party in Europe and Flux in Australia. Democratic mechanisms or pyramidal democracies, on the other hand, derive legitimacy, and thus project influence or power, in direct proportion to the size and activeness of the underlying network of citizens. Due to the nature of pyramidal networks, it is feasible to measure and substantiate how large and how active any given network might be. As a pyramid grows larger and as its top-tier delegates begin to demand open communication, the pyramid automatically begins to project power. LD, on the other hand, cannot project power unless it becomes integrated into pre-existing structures of power. LD thus suffers from a circularity and bootstrapping problem in the sense that political power is first needed before the prevailing system can be changed to fully incorporate LD.

Delegates: In PD the power of delegates is distributed, while in LD it can become centralised. The number of delegates in PD is a function of the size of the underlying base of the pyramid. The larger the base the greater the number of delegates at every tier of the pyramid. Because it is the job of delegates at each tier to monitor the accountability of delegates at the next highest tier, no single centre of power exists. LD, on the other hand, allows for "super-voters" or "super-representatives"

(Kling et al 2015; Blum and Zuber 216) – delegates who amass tremendous voting power[262], not least due to a law of distribution whereby they are more likely to be picked as a delegate because they are currently the delegate which has been picked the most; i.e. success to the successful.

This centralization of voting power might make it possible for super-voters to be coerced by unscrupulous third-parties or for such parties to actively engineer super-voters as so-called 'sock puppets'[263]. The history of political lobbying speaks to the danger of this possibility. It is much harder, however, to coerce or infiltrate PD in the same way because power is distributed. In a large pyramid, one would have to coerce or co-opt hundreds or even thousands of delegates in order to influence the structure as a whole.

Scale: PD automatically scales to any population size while LD does not seem to do so, at least not in the same way. The structure and function of a pyramidal network – delegation, compression, wheel configurations, open communication, constitutions – remain the same whether the pyramid comprises 1000 or 100 million citizens. Indeed, in a global pyramidal network constituted by every human being, there would be fewer than ten links between a citizen at the base of the pyramid and a citizen at the top of the pyramid. LD does not seem capable of scaling in the same way. In other words, it is unclear what exactly LD is scaling other than access to an online voting and discussion system that caters for the transitivity of votes.

Transnational Democracy: PD is premised specifically on enabling a form of transnational cosmopolitan democracy, while it is not immediately clear how LD might operate at the transnational level. Again, even if the underlying logic of LD were consistent for populations at the scale of hundreds of millions, it would seem that a bootstrapping and circularity problem persists: LD must depend on winning elections at the domestic level in order to project power at the transnational level. In the event that transnational institutions (financial institutions, in particular) exert undue influence at the domestic level, this problem becomes even more pronounced.

PD, on the other hand, is better equipped to facilitate democratisation at the transnational level, specifically by means of transnational pyramidal mechanisms that can engage in open communication with transnational institutions like the UN, IMF, WTO and World Bank. Again, the larger these networks become, the more power, *in potentia*, they might project and certainly the more difficult they become to ignore. PD might then facilitate transnational democratisation by facilitating the

[262] It is noteworthy that Kling et al (2015) find, in an analysis of liquid democracy in Germany, that super-voters tend to use their power 'wisely', seldom voting against majority opinions or purposely swinging votes. This is good news for liquid democracy but suggests also, for our purposes, that delegates in pyramidal democracy would undertake their duties responsibly.

[263] A sock puppet is a fake online persona used for the purposes of deception or manipulation.

formation of transnational pyramidal networks that project power. LD, on the other hand, has very little capacity at the transnational level prior to the instantiation of some threshold of global democracy.

Participation and Paradigm: The logic of PD suggests a solution to the problem of incentivising participation, while for LD is it is unclear why citizens are likely to participate at higher rates than the average. As a prime example, PD is envisaged to operate alongside a form of non-government-aligned e-participatory budgeting, where resources derived from redistributive fee-and-dividend taxes (a carbon tax, after James Hansen; a transaction tax, after James Tobin; and a global tax on capital, after Thomas Piketty) are assigned to local public goods projects (see Chapter 8). In this sense, participation in PD is incentivised as a means to ensure that one's share of resources accrue to projects that align with one's preferences. Under this kind of system – not dissimilar to Kickstarter – participation really does play a crucial role. It is not a case simply of delegating one's vote or one's share of resources to an expert third-party, but rather a case of deliberating with fellow citizens in order to identify projects in the common interest. Any citizen could allocate any portion of their resources to any number of different projects, and participation in PD would be a key means of discovering new projects and for consolidating support for potential projects.

In this way, the broader incentive to participate in PD is premised on the implementation of certain heterodox economic policies that devolve political and economic power down to the lowest feasible level. This premise is rooted in a narrative and, after Schumpeter, a pre-analytic vision that envisages a post-scarcity economic order – at least in the provision of primary goods. If this long-term vision can be properly communicated, and short-term goals incrementally achieved by the projection of power, then a prima facie reason for citizen participation exists. LD, on the other hand, does not immediately tell us how making voting easier, faster, more deliberative, and more transitive will lead to the emancipatory political project that might be required in order to solve the interrelated crises of the 21st century.

Thus, PD is premised on a "radical democratic project" (Cohen 2009) that includes both a democratic and an economic component. If Polanyi (1957) is correct that politics and economics were successfully separated into two different spheres over the course of the 19th and 20th centuries, then this radical democratic project seeks to merge the two spheres together again. Moreover, this economic component is seen as inseparable from the political component. LD, on the other hand, does not appear to be rooted directly in such a radical democratic and economic project.

Thus, in conclusion, we would suggest that pyramidal democracy is a more systematic and efficacious model of reconciling democracy with mass engagement then is liquid democracy. We are not

suggesting, however, that liquid democracy is fatally flawed or irrelevant, but rather that the 'pyramidal' in pyramidal democracy is more important than the 'liquid' in liquid democracy. In this sense, we can integrate transitive delegate voting into PD without fundamentally altering our description of it. We cannot integrate the logic of PD – pyramidal networks, compression, wheel configurations, etc – into LD, however, without making the latter synonymous with the former. This does not immediately indicate that PD is superior, but it does indicate an underlying complexity of structure in PD.

Overall, then, liquid democracy is an important step forward in reconciling democracy with mass engagement. Bespoke applications, like DemocracyOS, Lumio, and LiquidFeedback, suggest the feasibility of developing and deploying our own bespoke application. Moreover, the gradual integration of liquid democracy into the formal political party system sets important precedents for the feasibility of pyramidal-based party democracy. We would suggest, however, that pyramidal democracy is a more systematic and efficacious model overall.

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