Stakeholder Engagement in Social Enterprise: Designing a Sustainable Business Model for the 'Food for Us' Mobile Application

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Abstract

This study aimed to develop a sustainable business model that is cognisant of the fundamental principles of social enterprises that can sustain the operation of the Food for Us mobile application that links farmers with buyers in Eastern and Western Cape, South Africa. The Food for Us mobile application lacks a supporting sustainable social business model to sustain its continued operations, hence the need to develop one. In the study, data was generated qualitatively underpinned by an interpretive paradigm, in three workshops guided by the Delphi method. A stakeholder salience model was applied to identify key stakeholders and their salience. Three key stakeholders, namely users (farmers and buyers), Experts (App developers) and the consortium were identified. The study concluded that developing a sustainable social, innovative business model requires substantive consultation with multiple stakeholders in society. Every stakeholder is important and possesses varying salience, hence stakeholder mapping is an important exercise. The study further concluded that financial sustainability and social inclusion are critical social enterprise elements to consider in the process. The undertaking to enhance financial sustainability opens an understanding on the importance of income streams, the key activities, and value propositions offered by the mobile application. The need to remain socially inclusive brings forth questioning of value propositions, accessibility, user friendliness towards stakeholder diversity and needs. The study offers a solution for the Food for Us mobile application in the form of a prototype which is ready for testing, and if desired results are achieved, this can enhance the much needed continued operations of the mobile application.

Declaration

I, Idah Thato Tantsi, declare that the Dissertation entitled Stakeholder Engagement in Social Enterprise: Designing a Sustainable Business Model for the 'Food for Us' Mobile Application, which I hereby submit for the degree of Master of Business Administration at Rhodes Business School, Rhodes University, is my original work. I also declare that this dissertation has not previously been submitted by me for a degree at this or any other tertiary institution, and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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Idah Thato Tantsi February 2022

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To my family: Khaya, thank you for all that you are to me and to our kids. You have not only put up with an absent wife and co-parent, but you have done it with such enthusiasm, motivation and support. Your unwavering love and unbelievable belief in me and my abilities are what has pushed me through. Morena, Chulu and Andisiwe, thank you for being mommy's inspiration and support. I promise it will be worth it. Immense gratitude to all my family and friends, who have contributed in all ways, mostly emotionally and motivationally – Mama MmaMbii, Tata 'Bra D', MaB, Tsetse, Asa, Paul, Kaytee, Bonga, all of you, you know yourselves!

I dedicate this dissertation to my parents, Hope and Sosi Sono. You always said I could, now I have, and I am grateful.

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Acronyms and Abbreviations

10YFP	One Planet 10 Year Framework of Programmes for Sustainable Consumption and Production
DHA	Department of Home Affairs
DRDAR	The Department of Rural Development and Agrarian Reform
DTI	The Department of Trade, Industry and Competition
DWYPD	The Department of Women, Youth and Persons with Disabilities
ELRC	Environmental Learning Research Centre
FICA	Financial Intelligence Centre Act
LED	Local Economic Development
OECD	Organisation for Economic Cooperation and Development
POPI	Protection of Personal Information
SCP	Sustainable Consumption and Production
SLE	Sustainable Lifestyles and Education Programme
UNEP	United Nations Environmental Programme

Chapter 1: Introduction and Study Background

1.1 Introduction

In the 21st century, there is a need for farmers to move swiftly to adjust to the drastic changes in the global market systems. Agriculture marketing technological innovations is one of the ways that farmers can participate in and adapt to changes in both local and global market systems. These agricultural marketing technologies can be tailored to the farm level but can also impact on sustainability beyond the farm (OECD, 2015). Conventional and newer agricultural marketing technologies are related to biotechnology, information, and precision farming techniques and are part of wider global business models. Their dissemination is often within the national market, but their application is local or at communal level. This has promoted more production with less effort and a quick turnover in marketing of farm produce, thereby also reducing on-farm waste.

Agricultural marketing technologies have far reaching sustainability effects at farm level, but with more vertical integration, either through formal ownership structures or contractual relations along the whole food chain(s) they become complex business models. The decisions on the adoption of these agriculture marketing technologies at local or community farm levels often cannot be separated from decisions taken by the funders or implementing organisations.

In general, agricultural marketing technologies' business models, as with general business and economic models, seem to ignore the household, the commons, the society, the earth, and power differentials between rich and poor. Such exclusions in the economic system, create problems in the economic structure, which produces risk for many smallholder producers of social, ecological, and financial collapse (Raworth, 2017). This is because profit is the main goal of traditional business, with society and planet being an afterthought, compliance requirement or marketing strategy (Nicholls, 2006).

According to Yunus and Weber (2017), the dominant, increasing large-scale, mono-cultural, global capitalistic business model that shapes mainstream agri-business and its models of operation, is disastrous for the continuity and sustainability of smaller scale agricultural marketing enterprises and technologies. In response, there have been many efforts put in place to address this, especially from recent sustainability movements in business and

industry including in the food system sector, where the Food for Us project, which is the focus of this study, is located.

In essence, new agricultural marketing technologies aimed at smaller scale farmers and their well-being, have helped to mitigate some of the basic hurdles faced by smaller scale growers and buyers in the current food system. However, most worrying is the realisation that many of these agricultural technological innovations at community or small-scale farmer level have been driven by donor funding and motives, leaving the sustainability of the innovation doubtful beyond the funding life-cycle. This is the problem that this study seeks to address in the Food for Us project, which is a small-scale agricultural technology initiative aimed at addressing marketing and on-farm food challenges. It was explicitly developed to support small-scale farmers, but was also donor funded with a limited life span and without adequate sustainable business planning in place. Hence, there is a need to develop agricultural marketing technological innovations that, at the same time, can take cognisance of the need for sustainable business model(s) that can sustain such initiatives beyond donor funding. That is what this study seeks to achieve.

For this study, the focus is on developing a sustainable business model for the Food for Us mobile application through engaging key stakeholders via workshop sessions. Although this study does not aim to evaluate the Food for Us project, it bridges the existing financial sustainability gap by developing a sustainable business model for the Food for Us mobile application, and aims to recommend a suitable sustainable business model for wider application. The intention is to inform the Food for Us project in terms of future potential development of the socio-technical innovation, but also to inform other similar projects in terms of their business planning.

1.2 Background to the Food for Us project

The Food for Us is an innovative project that sought to understand how the use of mobile phone and internet technologies, along with active research processes can connect food producers and consumers in ways that reduce on-farm food waste.

<u>The Funder (funding objectives and outcome)</u>

The Food for Us project was initiated as a research project that was funded by the Sustainable

Lifestyles and Education (SLE) Programme of the United Nations One Planet 10 Year Framework of Programmes for Sustainable Consumption and Production (10YFP) fund. The 10YFP is a programme of the United Nations Environmental Programme (UNEP) (Environmental Learning Research Centre, 2017). The Food for Us project was selected through an open 10YFP Trust Fund Call for Proposals for Sustainable Lifestyles and Education Programme projects with the financial support of the Government of Japan. One Planet (10YFP) (SCP), is a fund established by United Nations Environmental Programme (UNEP) to support initiatives on Sustainable Consumption and Production (SCP) patterns (Environmental Learning Research Centre, 2017).

The 10YFP consists of six programmes namely, Sustainable Public Procurement, Consumer Information for SCP, Sustainable Tourism, Sustainable Lifestyles and Education, Sustainable Buildings and Construction, and Sustainable Food Systems. Food for Us project, implemented by the Environmental Learning Research Centre within a Consortium of partners, was supported and funded as a project within the Sustainable Lifestyles and Education programme. The SLE programme aims,

> to foster the uptake of sustainable lifestyles as the common norm, through a global network of Experts, practitioners and learners; develop tools and resources that allow policy makers, businesses and civil society to build sustainable systems of living and address global challenges such as biodiversity conservation, resource efficiency, climate change mitigation, poverty reduction and social well-being. (UNEP, 2012)

The Food for Us project objectives met most of the above descriptions as it aimed to develop a trial mobile application that resolves on-farm waste, reduces carbon emissions as well as poverty, and improves social well-being of the locals through improved market access and local food economies.

The Consortium

The Food for Us project was spearheaded by a research consortium, led by the Environmental Learning Research Centre (ELRC) at Rhodes University. Apart from the ELRC, the consortium also comprised the following organisations:

- Pinpoint Sustainability: A South African-based research organisation with a focus on supply chain value creation, food systems and food waste, green skills and occupations, and alien vegetation and forestry.
- Creating Sustainable Value: A South Africa-based consultancy that aims at building a sustainability case for business that involves the creation of both stakeholder and shareholder value.
- Feedback: A UK-based campaign group aiming to transform food systems across the world.
- The Sustainability Institute: A South African-based institute partnered with Stellenbosch University, with a focus on food systems, social innovation, optimal resource flows, and transformative learning.
- Lead Associates: A South African-based organisation that aims to tackle environmental problems using technology. These are the technical team of mobile application developers in the consortium.
- Carbon Calculated: A South African-based company that focuses on measuring, reporting, and minimising greenhouse gas related emissions.

The above-mentioned consortium collaborated towards the success of the Food for Us project. There were twelve separate consortium meetings and workshops from the inception of the Food for Us project idea to the actual piloting of the Food for Us mobile application. These meetings and workshops served specific purposes and were engaged with multiple as well as varying stakeholders including the farmers themselves as the key stakeholders.

The Project Food for Us (F4U)

Food for Us project's aim was to develop and undertake a trial mobile phone application in South Africa to contribute towards the alleviation of food waste and malnutrition in the country (Environmental Learning Research Centre, 2017). Food for Us project was funded for an eighteen-month period between February 2017 and June 2018, with the pilot running in Greater Cape Town and the Rural Eastern Cape regions of South Africa (Environmental Learning Research Centre, 2017).

The Food for Us Mobile Application

The Food for Us mobile application is an agricultural technological innovation developed from the broad project of Food for Us. The Food for Us mobile application was developed by a consultant group in the consortium, Lead Associates. Lead Associates is a South African-based organisation that aims to tackle environmental problems using technology. They developed the trial version of the Food for Us mobile application after several stakeholder engagement meetings hosted by the broader consortium, to build the mobile canvas. The trial version was then piloted for four months with forty users in the Greater Western Cape municipality of Worcester and the Rural Eastern Cape municipality of Raymond Mhlaba of South Africa during 2017–2018 respectively (Environmental Learning Research Centre, 2017). The forty trial users included ten buyers and ten growers in each of the two regions.

The primary aim of the Food for Us mobile application was to shift sourcing practices for fresh produce, reduce on-farm food waste, while allowing subsistence and commercial farmers to access primary and secondary markets for their surplus produce (Environmental Learning Research Centre, 2017). Secondly, the Food for Us mobile application intended to benefit small-scale farmers, consumers of fresh produce, and the environment, through carbon savings and other environmental benefits associated with local food economies. In essence, the Food for Us mobile application was meant to bridge the gap between farmers and buyers, thereby fostering the local food trade (*ibid*, 2017), while reducing on-farm waste and carbon transportation costs at the same time. At global level, the Food for Us mobile application addresses the following Sustainable Development Goals: 1: Eradicate poverty in its all forms; 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture; 3: Ensure healthy lives and promote well-being for all at all ages; 4: Ensure sustainable consumption and production patterns (*Ibid*, 2017) (See section 1.2).

At national level the Food for Us mobile application intended to contribute towards addressing the food waste and malnutrition crisis South Africa is faced with. Thus, the Food for Us mobile application sought to facilitate the redistribution of surplus food to alternative online markets, thus reducing on-farm food waste. In essence, the farmers can access quick and ready online markets via the Food for Us mobile application. Hence, the Food for Us mobile application connected farmers and buyers.

However, with the ending of the eighteen month funding period of the Food for Us project, sustaining the operations of the Food for Us mobile application became a challenge. The funding of the operations and host fees for the Food for Us mobile application stopped within a six month period following the end of the donor funding. As a result, the Food for Us mobile application, while having value for farmers, became dormant in the 2019/20 period, as there was no funding to finance the operations and hosting of the Food for Us mobile application by the developers. It is from this problem that this study was born. Hence, the study argues for a need to develop agricultural marketing technological innovations that take cognisance of the need for designing sustainable business model(s) beyond donor funding.

The Beneficiaries/External Stakeholders

At the time of initiating this study (in 2019/20), when the problem became apparent and the researcher was approached to consider appropriate business model development for the project, the Food for Us project had forty participants registered and using the Food for Us mobile application from the Greater Western Cape municipality of Worcester and the Rural Eastern Cape municipality of Raymond Mhlaba in South Africa. These beneficiaries comprised of ten farmers and ten buyers in each of the two regions mentioned above.

Other beneficiaries are the Experts. In this study, Experts include: sustainable education partners; mobile app developers; business modelling and tech transfer Experts; social innovators; researchers in sustainable food systems and local food economy fields; and funders who have an interest in social innovation such as that represented by the Food for Us project. This incorporates everyone who may benefit from sustainable business model development. This study assumes that learnings from the different stakeholder contributions to a sustainable and functioning Food for Us mobile application will potentially be beneficial to the end users.

1.3 Impact and benefits of the project

The Food for Us project and the Food for Us mobile application had an impact at local level and benefited many stakeholders (Durr, 2020). One impact of the Food for Us project was the development and piloting of the Food for Us mobile application in the Eastern and Western Cape, South Africa (Durr, 2020).

Some of the immediate beneficiaries of the Food for Us mobile application were, firstly, the consortium team led by the Environmental Learning Research Centre (ELRC) of Rhodes University. The consortium became one of the key stakeholders and beneficiaries in the partnership. The consortium benefited from the project in the form of research into social learning patterns and affordances for its users. This resulted in a Master's in Education thesis study which also informed the development of the application and its use (Durr, 2020). A second research study is this one, focusing on developing a sustainable business model to enhance the sustenance and continuity of the Food for Us mobile application beyond donor funding.

Secondly, the farmers who were the primary users of the Food for Us mobile application also benefited from the project. The Food for Us mobile application bridged the gap between producers (farmers) and buyers. It connected the farmers to immediate and ready online markets for their produce thereby reducing on-farm waste. This promoted and fostered local food trade and economies (Environmental Learning Research Centre, 2017; Durr, 2020).

Thirdly, the buyers were also immediate beneficiaries of the Food for Us mobile application because they were primary users. In essence, the buyers used the mobile application to geo-reference and locate fresh farm produce. This reduced market search costs and improved farmer to buyer prior communications and transactions via the mobile application. The buyers could use the mobile application to locate farmers in their vicinity as well as promote local food economies (Durr, 2020).

Fourthly, the funders, Sustainable Lifestyle and Education (SLE) will benefit from this research into sustainable business modelling, which is an outflow of the project, in several ways. A sustainable business model for Food for Us mobile application can enable the continued functioning of the app beyond the funding cycle (there has been interest in this from the technology advancement unit at Rhodes University, and from the farmers themselves as well as a local food retailer in the Eastern Cape, showing that there is potential use for the business planning research being undertaken).

Beneficiation for future partners interested in the Food for Us programme would mean that funders would have little or no responsibility for continued external funding of the Food for Us mobile application operations, including the developer costs, hosting licences and rights

beyond the grant funding. Improved business planning can contribute to one of the prime objectives of the Food for Us project: to develop and undertake a trial mobile phone application in South Africa which could contribute towards the alleviation of food waste and malnutrition in the country (Environmental Learning Research Centre, 2017). This was achieved by 2019/20, but not fully sustained. Another prime aim of the Food for Us mobile application was to shift sourcing practices for fresh produce and reduce on-farm food waste, while allowing subsistence and commercial farmers to access primary and secondary markets for their surplus produce (Environmental Learning Research Centre, 2017); this too was partially achieved by 2019/20, but also not fully sustained. Fuller achievements of the above-mentioned goals means that further value would be added to the funding targets, enabling further expansion of the programme and uptake, which would contribute to the better fulfilment of the objectives, and the original intentions of the SLE funding.

1.4 Current status of the Food for Us project

As discussed earlier, the Food for Us project was an eighteen-month (February 2017–June 2018) funded project by the UNEP and partnering with various other stakeholders. Currently, at the time of undertaking and writing up this research, the Food for Us project was on a transitionary break and was seeking out more sustainable options for its continuity. Consequently, the Food for Us mobile application has also been dormant because there has been no funding to sustain the operations and hosting of the mobile application by the developers, following the maturity of the grant-funded project and some voluntary post-project support. The grant-funded project had not considered the sustainability of the Food for Us mobile application beyond the decommissioning of the project. Hence, there was a need to design and develop a business model that is cognisant of the fundamental principles of social enterprises that can sustain the operation of agricultural technologies such as the Food for Us mobile application that links farmers with buyers in the Eastern and Western Cape, South Africa.

1.5 Problem context

As indicated above, the UNEP eighteen-month funding (February 2017– June 2018) of the Food for Us project, did not put in place adequate measures for longer term sustainability to sustain the operations and hosting of the Food for Us mobile application and its potential for

further innovation. This resulted in the Food for Us mobile application being forced into a dormant period, exposing the users (farmers and buyers) to the risk of reduced access to markets, affordable and nutritious foods, and on-farm waste. This raises the question regarding the sustainability of agricultural technologies beyond grant funding and how this real challenge can be dealt with. The business model (i.e. donor-funded development and pilot-testing phase) of the Food for Us project never took cognisance of the need for sustainability of the Food for Us mobile application beyond the Food for Us project decommissioning period. This is the dilemma that Food for Us project now finds itself in; there was no sustainable business model(s) in place, and that is what led to this research. Thus there is a need to design and develop a business model that is cognisant of the fundamental principles of social enterprises that can sustain the operation of agricultural technologies such as the Food for Us mobile application beyond the funding period. The problem of unsustainable approaches to funding projects such as the Food for Us is not an isolated case but is part of a wider pattern that leads authors in other parts of Africa, for example, to call for a need to "unbundle the conditions, under which donor-funded projects are rendered sustainable in rural contexts" (Muhluh, Kimengsi & Azibo, 2019). They report on the perennial problem of donor-funded "project impact and sustainability" including in the agricultural technology innovation sphere (see also Collier and Dollar, 2002).

1.6 Problem statement

The main problem addressed by this study is the absence of a sustainable business model that could sustain the operation of the Food for Us mobile application project, following the end of its donor funding initiation phase.

1.7 Aim and objectives of the study

The aim of the study was to develop a business model that is cognisant of the fundamental principles of social enterprises that can sustain the operation of the Food for Us mobile application that links farmers with buyers in Eastern and Western Cape, South Africa.

The specific objectives of the study were to:

1. Identify key stakeholders in the context of the Food for Us mobile application, using the salience model.

2. Determine key social enterprise elements in Food for Us project to inform a business model for sustaining the operation of the Food for Us mobile application.
3. Develop a viable business model that can sustain the operation of the Food for Us mobile application through brainstorming in a series of workshops.

1.8 Scope of the study

The study falls within business modelling in the field of sustainable business and social entrepreneurship. The focus is on developing a sustainable business model for the Food for Us mobile application via key stakeholder brainstorming workshop sessions. This study does not aim to evaluate the Food for Us project but to bridge the existing financial sustainability gap by developing a sustainable business model for the Food for Us mobile application. The study also recommends that the sustainable business model, if successful, be customisable for implementation in other similar contexts.

1.9 Rationale for the study

Aligning this study within the business-modelling field is due to the value that it brings to the sustainability of a business. Secondly, Food for Us as a project has proven social impact potential (Durr, 2020). Expanding this potential with business modelling offers an opportunity for the project to become self-sustainable via the added value or potential of using social enterprise principles, which are mainly associated with social entrepreneurship. Justification and literature support this (see Chapter 2).

<u>Justification on why the development of a business model</u>

The development of the Food for Us mobile application business model is motivated by its absence as outlined above. The sustainability of such a project's operational costs cannot be maintained beyond grant funding without a sustainability plan. A viable business model for the Food for Us mobile application would mean expansion, continuity and longevity of the mobile application and its benefits to communities which were revealed in the study by Durr, (2020). In this way, a sustainable business model for Food for Us mobile application would contribute towards addressing food waste and malnutrition problems in South Africa. In addition, a sustainable business model for Food for Us mobile application could provide continued benefits to the primary users (farmers and buyers) such as access to online

markets, reduced on-farm food waste via the app sales and quick access to affordable nutritious food by consumers. Continuity of the Food for Us mobile application can also potentially keep the farmers, consumers and other relevant stakeholders connected, allowing redistribution of surplus food to alternative markets, thus reducing food waste. Therefore, the development of a sustainable business model that supports the operations of the Food for Us mobile application has potential to be beneficial to a wide range of stakeholders as discussed above.

Relevance for business modelling and social entrepreneurship

In recent years, the need for businesses to operate in a manner that takes cognisance of the social and environmental aspects has gained traction and holds the attention of all the stakeholder groups concerned (Elkington, 2004). The term "triple bottom line" became more visible, and has been used to describe the responsibility that corporations have, not only to add economic value, but to also environmental and social value through the ways in which they conduct business (Norman & MacDonald, 2004; Elkington, 2004). Corporates have also realised that through the enhancement of socially and environmentally focused enterprises they can further increase their economic benefits (Norman & MacDonald, 2004). As such, in recent years, there has been an increase in businesses started on the principle of social entrepreneurship (Calic & Mosakowski, 2016).

A social entrepreneur is defined as a classified change agent in the social sector whose aim is specifically to focus on creating sustainable social value, engaging in continuous innovations, and exhibiting a high level of accountability to all stakeholders and outcomes (Dees, 1998). In the past, the purpose of entrepreneurship was limited to creating wealth and business growth (Carraher, Welsh & Svilokos, 2016). But the role of social entrepreneurship has since increased immensely in both non-profit and for-profit businesses (Letaifa, 2016). Furthermore, social entrepreneurship is now perceived to have the ability to transform communities and improve the quality of life of poor and marginalised groups of society (Letaifa, 2016). This transformation can be further enhanced through the application and creation of business models aimed at addressing and resolving complex social needs (Peredo & McLean, 2006), as in the Food for Us context described above.

One of the key aspects of successful social entrepreneurship is the ability to take business principles and innovative concepts and apply them to the social enterprise to maximise revenue generation, without comprising the core mission that is social responsibility (Pomerantz, 2003). This has led to the creation of the principle of sustainable business models which are specifically oriented towards addressing and resolving social and environmental issues (Dentchev et al., 2016). Hence, this study argues for a need to design and develop a business model that is conscious of the fundamental principles of social enterprises that can sustain the operation of agricultural technologies such as the Food for Us mobile application that links farmers with buyers.

Business models are defined as a system of interrelated and symbiotic activities that define the manner in which an organisation conducts its business activities with its various stakeholders (such as its customers and suppliers) (Zott & Amit, 2010). However, Zott and Amit (2010) highlighted a few considerations when designing sustainable business models. They argue that the structure, effectiveness and design of the business model are crucial to the success of the business (Zott & Amit, 2010). Hence, they urge for a careful consideration on the overall objectives of the business and all the stakeholders involved during the creation of the business model (Zott & Amit, 2010). In addition, there is a need to consider availability of resources to execute and design the business model effectively (Zott & Amit, 2010). It is against this understanding of stakeholders' involvement that this study intended to develop a viable business model that can sustain the operation of the Food for Us mobile application.

1.10 Structure of the study

Chapter 1

This is the introductory chapter of the study and it provides the background to the Food for Us project, insight into the inception of the Food for Us mobile technology development and benefits, and subsequent need for a more sustainable business model. The chapter further presented the problem statement, aim and research objectives the study wishes to satisfy. A justification for, and rationale of the study are also given in this section. Lastly, the scope of the study are discussed. This chapter offers background understanding necessary for the development of chapter two that follows.

Chapter 2

The chapter outlines the literature that underpinned developing a feasible yet sustainable business model for the Food for Us mobile application. The chapter further discusses the underpinning theory and social business models as these informed and guided the study. The chapter argues that, in the context of social enterprises, there is a need to involve the key stakeholders in the development of sustainable business model. Secondly, the chapter argues that it is important to classify each of the stakeholders into relevant grouping to assess the way the various stakeholders' relationships are managed and how they are involved in the development of the business model. Lastly, the chapter illuminates that during the development stage of the business model, it is important to decide on a specific group to focus on for feedback. This chapter helps to identify important principles and practices to take into consideration when designing and developing business models.

Chapter 3

This methodology chapter describes the qualitative research methodology, interpretive paradigm, and associated case study design adopted for this study. The chapter further describes how the Delphi Method was applied in conducting this study, showing its usefulness in informing and guiding the methodological processes and decisions in the study. The chapter also describes the study population and how the sampling was conducted. In essence, this chapter presents a trail of how data was generated for this study.

Chapter 4

This chapter presents the findings of the study. It presents evidence of stakeholder analysis using Mitchell, Agle and Wood's stakeholder salience model. Secondly, the chapter presents key sustainable social enterprise elements for the Food for Us mobile application. Lastly, the chapter presents a sustainable business model for Food for Us mobile application.

Chapter 5

The chapter summarises and discusses the study's findings and insights. The chapter further discusses key stakeholders in the Food for Us mobile application using the Stakeholder Salience Model. The chapter further discusses the key social enterprise elements that emanated from the three stakeholder brainstorm workshops. Lastly, the chapter, discusses the viability of the business model developed for Food for Us mobile application.

Chapter 6

The chapter concludes and presents recommendations towards the improvements on the Food for Us mobile application and outlines recommendations for future research to inform future studies. The limitations of the study are also discussed.

1.11 Conclusion

This chapter introduced the project Food for Us project and identified the problem of an absence of sustainable business planning, and its effects. It points to the limitations of donor funded social innovations such as the Food for Us without adequate business planning, and identifies the need for more sustainable business planning, involving stakeholders. This sets the framework for the research problem and the study objectives. The next chapter looks at literature that guides this study.

Chapter 2: Literature Review

2.1 Introduction

This chapter outlines the literature that underpins the development of a feasible yet sustainable business model for a socially focused mobile application. Building on the introduction and research problem outlined in Chapter 1, the chapter uses the context of social enterprises to indicate a need to classify and involve the key stakeholders in the development of a sustainable business model. Secondly, the chapter offers insight into how to classify each of the stakeholders into relevant groupings to assess the way the various stakeholders' relationships are managed and included in the development of the business model. In essence, this chapter identifies important principles and practices to take into account when designing and developing business models such as those required in this study context. It offers underpinning theory for informing and guiding this study.

2.2 Stakeholder theory

2.2.1 Salience Model Theory

This study is informed and guided by stakeholder theory emerging from the work of Freeman (1984). Freeman (1984) generally describes stakeholder theory in terms of emphasis on the importance of relationships between a business and the groups or individuals who can affect or be affected by it. From the stakeholder perspective, a business can be understood as a set of relationships among groups that have a stake in the activities that make up the business (Freeman, 1984; Jones, 1995; Walsh & Walsh, 2005). Therefore, it is about how customers, suppliers, employees, financiers, communities, and managers interact to jointly create and trade value; and one can only get a better understanding of the business by understanding how these relationships work and change over time (Freeman, 1984).

Drawing on the above, it would seem that it is important to consider the various stakeholders involved, when developing a business model for a mobile application that connects and is used by various stakeholders as is the case in the Food for Us project (Peterson, Adams & DeMuro, 2015). Stakeholder theory encourages management to question the purpose of the organisation, as well as the responsibility of the organisation in relation to the various stakeholders involved (Freeman, Wicks, & Parmar, 2004). Stakeholder theory has been widely

used in the business sector (Peterson, Adams & DeMuro, 2015; Mishra & Dwivedi, 2012) using comprehensive analysis since the inception of the theory in the 1990s (Agle, Donaldson & Freeman, 2008), relative contributions or privileges of stakeholders and stockholders (Freeman, Wicks & Parmar, 2004), and advancing the specificity and clarity of the theory (Phillips, Freeman & Wicks, 2003; Smith, 2003). Stakeholder theory work has advanced four areas of new inquiry which includes: (a) normative ethical insights underpinned in stakeholder theory (Mishra & Dwivedi, 2012; Yuthas & Dillard, 1999); (b) stakeholder-responsive action especially in market fail societies (Heath, 2006); (c) ideas and frameworks that managers can use to run organisations better (Rowley, Shipilov & Greve, 2016); and (d) better theory and methods that can serve stakeholder theory development (Fedorowicz et al., 2010).

Freeman, Wicks and Parmar (2004) responded to Sundaram and Inkpen's (2004) shareholder maximisation value thesis, by clarifying misconceptions about stakeholder theory and concluded that truth and freedom are served best when business and ethics are combined. Burga and Rezania (2016) successfully used stakeholder theory through a descriptive case study on social entrepreneurship. Through application of stakeholder theory they managed to demonstrate *stakeholder salience* and *stakeholder social issue management valence* in a social entrepreneurial organisation. In essence, they innovated a methodology that combined and viewed the stakeholders and their importance to the social entrepreneur on a single map (Burga & Rezania, 2016). From an understanding of stakeholder theory, they added that *stakeholder salience and valence positions change at critical times*. Hence, there is need to balance the allocation of time and attention to stakeholders while simultaneously keeping with their social mission in social entrepreneurship.

Ackermann and Eden (2011) explored how top management teams increase the robustness of their strategies by attending to important concepts emerging from the stakeholder literature. Their work was mostly on analysing the three themes emanating from stakeholder theory with development of a method that can apply stakeholder management concepts in practice. Their systematic method helped in identifying and managing the key stakeholders for the specific organisation’s strategic future. They categorised stakeholders into four different groups: players, subjects, context setters and the crowd, based on their levels of power and interest (see Figure 2.1).

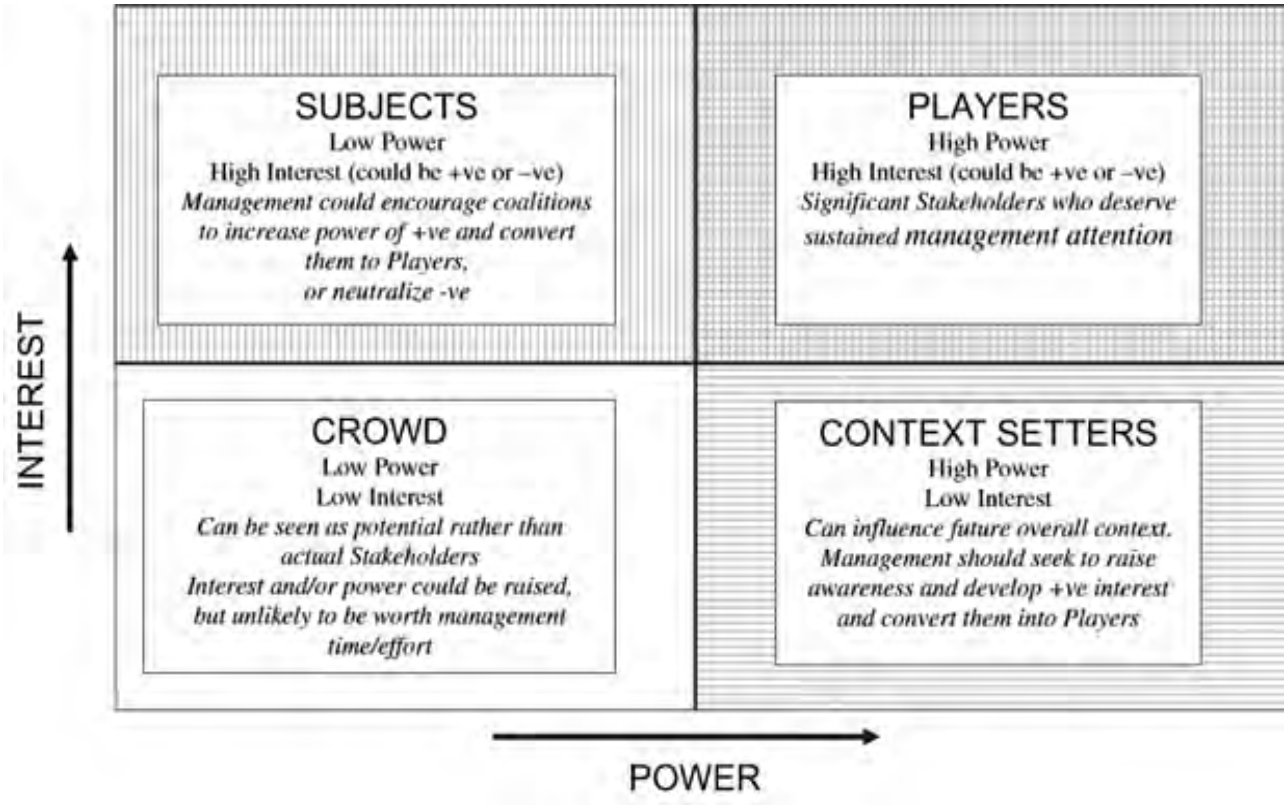

Figure 2.1: Power-interest grid (Source: Ackermann & Eden, 2011)

As shown in Figure 2.1, players have high interest and power and thus require the most attention from management (Ackermann & Eden, 2011). Subjects have low power but high interest and require moderate attention from management (*ibid.*, 2011), while the context setters have high power but low interest and require moderate attention from management (*ibid.*, 2011). Finally, the crowd has low power and low interest and thus require low attention from management (*ibid.*, 2011). Drawing from the above understanding, stakeholders can be classified according to their power and interest.

The work of Mitchell, Agle and Wood (1997) towards the theory of stakeholder identification and salience based on stakeholders attributes, namely power, legitimacy and urgency, is of great importance to this study. They propounded the stakeholder salience model (*ibid*, 1997) which proposes that "*classes of stakeholders can be identified by their possession or attributed possession of one, two, or all three of the following attributes: (1) the stakeholder's power to influence the firm, (2) the legitimacy of the stakeholder's relationship with the firm, and (3) the urgency of the stakeholder's claim on the firm"* (Mitchell et al., 1997: 854). This

offers a stakeholder salience typology of stakeholder identification that can reliably separate stakeholders from non-stakeholders. The same stakeholder salience typology will be used to identify and define the roles of the key stakeholders in the Food for Us project.

In essence, the stakeholder salience model classifies stakeholders according to their power, legitimacy, and urgency (Neville & Menguc, 2006). The three classifications are discussed in detail below.

Power

Weber (1947 cited in Mitchell, Agle & Wood, 1997: 865) describes power as the ability of stakeholders to exercise their own will albeit in the presence of resistance. While Pfeffer (1981: 3) views power as "*a relationship among social actors in which one social actor, A, can get another social actor, B, to do something that B would not otherwise have done."* Mitchell, Agle and Wood (1997) attribute this power to resource availability and dependence, meaning that if party A has more resources that party B, or party B is dependent on party A for resources, then party A would have more power.

Ali (2015) found a consensus amongst scholars that power is central to the stakeholder salience model (Mitchell et al., 1997; Agle et al., 1999; Driscoll & Starik, 2004; Eesley & Lenox, 2006). However, the work of Mitchell et al. (1997) with three organisational theories, namely agency theory, resource dependence theory, and transaction cost theory, points to power as an important stakeholder feature. However, they argue that power alone is not enough to give an entity the status of a stakeholder in the context of stakeholder theory. Moreover, power needs to be understood in terms of the nature of stakeholder-organisation interaction. In addition, Driscoll and Starik (2004) point out that power can be understood in the context of stakeholder recognition through managerial perceptions (Clarkson, 1995; Greenley & Foxall, 1997; Mitchell et al., 1997); instrumental perceptions signifying mutually dependent relationships between the organisation and its stakeholders (Freeman, 1984; Freeman & Evan, 1990; Hill & Jones, 1992); and the perception that stakeholders have a direct influence on organisational survival (Freeman, 1984; Frooman, 1999; Eesley & Lenox, 2006). Additionally, from the social network theory perspective, network centrality and density decides an organisation's power regarding its stakeholders (Rowley, 1997; Driscoll & Starik,

2004; Neville & Menguc, 2006). Hence, stakeholders can be more salient by attaining more power through alliances and coalitions (Frooman, 1999; Neville & Menguc, 2006).

However, for the purpose this study, power will be understood and defined along Mitchell et al.'s (1997) application of Etzioni's (1964) categorisation of power in organisational settings. Etzioni's application of power would mean that one party will have power over the other to the extent that it has access to coercive, utilitarian, or normative sources of power; in essence, power ''*based on the physical resources of force, violence or restraint, on material or financial resources, or on intangible 'symbolic' resources such as prestige, esteem, love and acceptance*" (Fassin, 2012: 88). The understanding of power will also be in agreement with Etzioni's three sources of power which defines stakeholder power as ''*power [that] exists where one social actor, A, can get another social actor, B, to do something that B would not have otherwise done*" (Agle et al*.,* 1999: 508). Furthermore, this study is in agreement with the additional features of power given by Mitchell et al. (1997) that power is a changing phenomenon, and the types of power can exist in combinations and separately. Finally, the study recognises that power is an important stakeholder characteristic, but power alone will not constitute a stakeholder.

Legitimacy

Ali (2015) defines legitimacy as "*the sine qua non of stakeholder status*". Without legitimacy, entities are non-stakeholders with the potential to become stakeholders if they gain legitimacy at some point in the future. Suchman (1995) defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (*ibid*, 1995: 866). While, Mitchell, Agle and Wood (1997: 866) define legitimacy to "*loosely refer to socially accepted and expected structures or behaviours, [and] often is coupled implicitly with that of power when people attempt to evaluate the nature of relationships in society*."

Suchman (1995) notes that legitimacy is possessed objectively, but created subjectively. Davis distinguishes legitimate from illegitimate use of power by declaring, "in the long run, those who do not use power in a manner which society considers responsible will tend to lose it" (1973: 314). In essence, the assumptions that legitimate stakeholders are necessarily powerful, and that powerful stakeholders are necessarily legitimate, are not always correct

(Mitchell, Agle & Wood, 1997: 866). Suchman (1995) proposed three types of legitimacy namely, moral, pragmatic and cognitive. Moral legitimacy reflects "*beliefs about whether the activity effectively promotes societal welfare, as defined by the audience's socially constructed value system"* (*ibid*, 1995: 579). The moral legitimacy has a pro-social logic that is inherently different from the logic of narrow self-interest of the organisation (Suchman, 1995).

However, Neville et al*.* (2011: 372) rejected the pragmatic legitimacy proposed by Mitchell et al*.* (1997) arguing that it is based on self-interested calculations and can be "purchased" by providing "self-interested inducements to the relevant audience". In addition, they also rejected cognitive legitimacy, on the basis that it may see organisational support rising from certain cultural expectations or from organisational necessity based on taken-for-granted cultural beliefs. Hence, they argue that cognitive legitimacy does not consider the process of evaluation but considers only the amount of reflection needed to come to a conclusion regarding legitimacy.

For the purpose of this study, legitimacy will be understood and defined along Suchman's definition of legitimacy which recognises the social system within which legitimacy is attained. This means legitimacy will be viewed as a desirable social good, that it is something larger and more shared than mere self-perception, and that it may be defined and negotiated differently at various levels of social organisation.

Urgency

Mitchell et al*.* (1997) posit that viewing power and legitimacy as independent variables in stakeholder-manager relationships does not capture the important dynamics of stakeholder-manager interactions. They propose that adding urgency helps to move the model from static to dynamic (*ibid*: 867). Urgency is based on two attributes, namely (1) time sensitivity, which is defined as the degree to action, and (2) criticality, which is the degree of importance to act. In simple terms, urgency is the degree to which stakeholder claims call for immediate attention (Mitchell et al*.,* 1997). Stakeholders with a high level of urgency will thus require a high level of management (Neville & Menguc, 2006).

It is important to note that the increase in any of the three attributes discussed above increases the salience of the stakeholder (Neville & Menguc, 2006), as shown in the graphical representation of stakeholder salience in Figure 2.2.

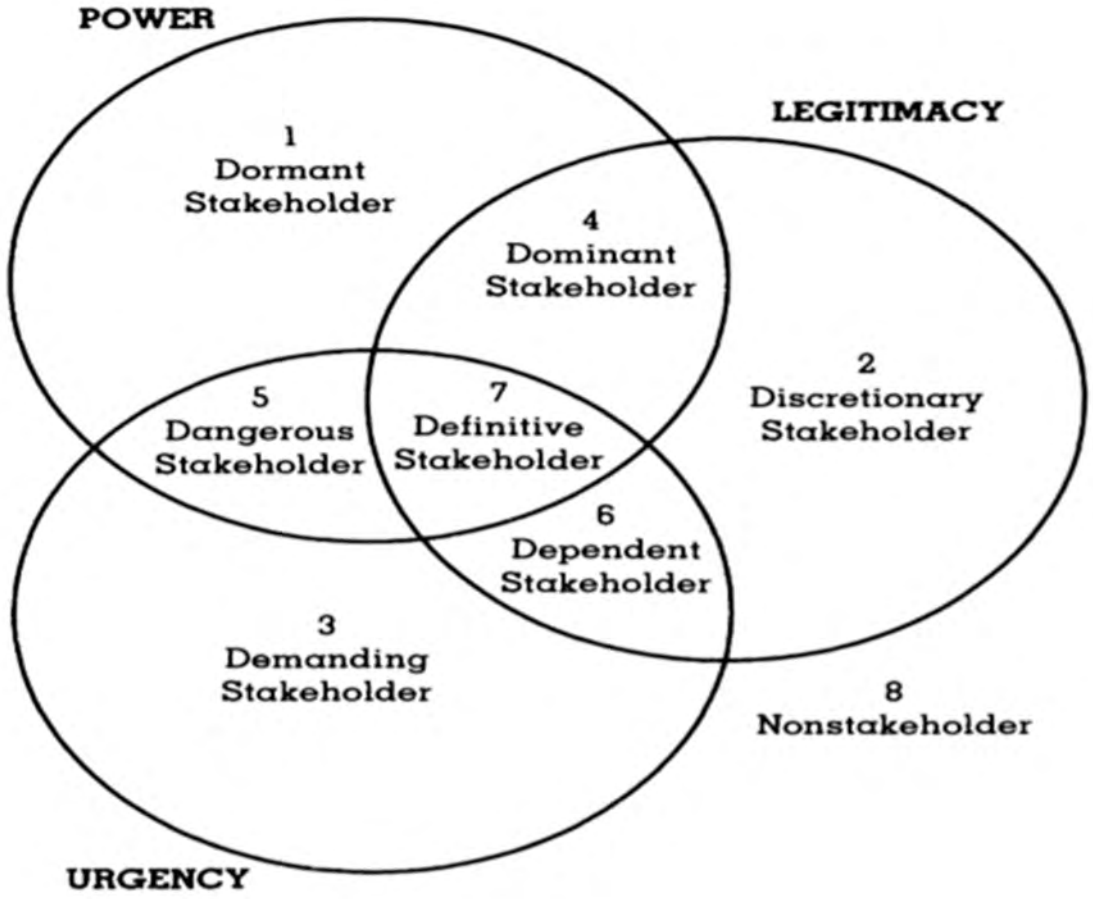

Figure 2.2: Stakeholder Typology: One, Two, or Three Attributes(Source: Mitchell, Agle & Wood, 1997: 874)

2.2.2 Stakeholder salience and stakeholder propositions

As described in Figure 2.2, the stakeholder salience model provides a basis for stakeholder analysis and justifies identification of entities that are considered to be salient stakeholders of the organisation. The stakeholder salience model will be applied in the identification and justification of the key stakeholders with regard to the sustenance of the operations of the Food for Us mobile application. The model suggests that entities with no power, legitimacy, or urgency are not perceived as salient stakeholders.

The stakeholder attributes discussed above will be used together with propositions, summarised in Table 2.1 below, in the study's stakeholder analysis (see Chapter 4).

Table 2.1 Stakeholder Propositions

Proposition		**Stakeholder description**		**Salience attributes**	**Salience status**
1	Proposition 1 a	Latent Stakeholders	Dormant	Power	Low salience
			Discretionary	Legitimacy	
			Demanding	Urgency	
	Proposition 1b	Expectant stakeholders	Dominant	Power & legitimacy	Moderate salience
			Dangerous	Power & urgency	
			Dependent	Urgency & legitimacy	
	Proposition 1c	Definitive stakeholders	Definitive	Power, urgency & legitimacy	High salience

Key
If stakeholders possess one of the three attributes – **latent/low salience**
If stakeholders possess two of the three attributes – **moderate salience**
If stakeholders possess all the three attributes – **high salience**

The stakeholder propositions outlined in Table 2.1 are elaborated further below (Mitchell, Agle & Wood, 1997; Mitchell et al., 1997).

Proposition 1:

Stakeholder salience will be positively related to the cumulative number of stakeholder attributes namely, power, legitimacy and urgency (Mitchell, Agle & Wood, 1997: 873). In the study a scoring scale will be developed and assigned values to represent each attribute. If an entity is identified as a stakeholder but possesses accumulative value on only one of the three attributes it will be considered latent/low salient, as shown in Table 2.1 above. If the stakeholder possesses two of the three salience attributes it will be regarded as a moderate salient stakeholder as shown in Table 2.1. Drawing from Mitchell et al. (1997: 873), because these stakeholders "expect something", they can be called "expectant" stakeholders. Lastly, if stakeholders possess a combination of all the three attributes (including the dynamic relations among them) they will be perceived as highly salient stakeholders (see Table 2.1). As suggested by Mitchell et al. (1997: 873), in this study class descriptive names will be used

for discussion purposes, but recognising that the names are less important than the theoretical types they represent, as shown in Figure 2.2.

Latent Stakeholders

These are the stakeholders who are unlikely to give any attention or acknowledgment to the organisation. They are commonly referred to as the expectation stakeholders. This group of stakeholders is made up of three classes namely: 1 – dormant; 2 – discretionary; and 3 – demanding.

Proposition 1a:

Low stakeholder salience, likely to possess only one of the stakeholder attributes of power, legitimacy, or urgency.

- Dormant stakeholders

Dormant stakeholders possess power, they can be described as latent stakeholders as described in proposition 1a and represented in class 1 (see Figure 2.2). They possess power to impose their will on an organisation, but fall short on legitimate relationship or an urgent claim to the organisation. This group of stakeholders has coercive power, utilitarian power, and symbolic power. Ideally, this group of stakeholders has little or no interaction with the organisation, but has high potential to acquire a second attribute, and become more salient stakeholders.

- Discretionary stakeholders

Discretionary stakeholders possess the attribute of legitimacy, but without power or urgency to influence the organisation. Hence, there is no pressure on managers to engage in an active relationship with such stakeholders, making them latent stakeholders.

- Demanding stakeholders

Demanding stakeholders are those stakeholders with urgent claims but who have neither power nor legitimacy. They are described as “demanding” and are unable or unwilling to acquire either the power or the legitimacy that is necessary to move their claim into a more salient status beyond latency.

Expectant Stakeholders

Expectant stakeholders are in a different zone of salience, with stakeholders possessing at least two of the three attributes. This group of stakeholders is made up of three classes namely: 4 – dominant; 5 – dangerous; and 6 – dependent. In addition, this group of stakeholders is perceived to have a moderate-salience relationship with the managers of the organisations and are thought of as "expecting something" because they are active. Thus, the level of engagement between managers and expectant stakeholders is likely to be higher (Mitchell et al., 1997).

Proposition 1b:

Moderate salience stakeholder, likely to possess two of the three stakeholder attributes of power, legitimacy and urgency.

- Dominant stakeholders

These are stakeholders with both power and legitimacy, hence their high influence, forming a "dominant coalition" in the enterprise (Cyert & March, 1963). They are described as "dominant" because of the legitimate claims they have upon the organisation and their ability to act on these claims (Mitchell et al., 1997). These are the stakeholders that matter in an entity and may have formal mechanisms that acknowledge the importance of their relationship with the organisation. In other words dominant stakeholders "expect and receive much of managers' attention, but they are by no means the full set of stakeholders to whom managers should or do relate" (Mitchell et al., 1997: 877).

- Dangerous stakeholders

Dangerous stakeholders possess urgency and power but lack legitimacy. Urgency and power are the two attributes which Mitchell et al. (1997: 877) argue make stakeholders coercive and possibly violent, making the stakeholder "dangerous". In this case, coercive power is often associated with illegitimate status. An example of such coercive attempts to advance stakeholder claims include unprotected strikes, employee sabotage, and terrorism. These actions are not only illegitimate, but dangerous too. Mitchell et al. (1997: 877) further urge that the failure to identify dangerous stakeholders would result in missed opportunities for danger mitigation and in lower levels of preparedness, where no accommodation is possible.

- Dependent stakeholders

Dependent stakeholders have urgent and legitimate claims but lack power, so they become "dependent" on other stakeholders' power to fulfil their will. An example would be local residents and animals impacted by coal mines. Despite the genuine urgency and legitimate claims of pollution, they wait upon activists and other dominant forces like legislators to fulfil their claim, as they are otherwise unattended to. Despite their dependency, the dependent stakeholders are the most salient stakeholder class because their urgent claims are adopted by dominant stakeholders.

Definitive Stakeholders

Definitive stakeholders possess all of three attributes namely, power, urgency and legitimacy, and are the most salient of all. They are competing stakeholders by nature.

Proposition 1c:

Stakeholder salience is high when all three of the stakeholder attributes namely, power, urgency and legitimacy are possessed.

When a stakeholder exhibiting both power and legitimacy already belongs to the dominant coalition and when their claim is urgent, it has to be given attention and priority. Hence, the stakeholder is likely to migrate from being a dominant stakeholder into the "definitive" category.

2.3 Stakeholder theory and business model design for social enterprise development

2.3.1 Bringing stakeholder theory and business design models together in this study

As outlined above, this study is informed by stakeholder theory (Freeman, 1984), drawing much from the work of Mitchell, Agle and Wood's (1997) Salience Model (see Figure 2.2). The Salience Model helps in identifying and describing the key stakeholders using the three stakeholder attributes of power, legitimacy and urgency (Mitchell, Agle & Wood, 1997). However, the Salience Model needed to be applied to business model development for the Food for Us project as outlined in Chapter 1. Hence, there was a need to relate stakeholder theory to business development models, especially those concerning social enterprises, with an emphasis on technology-influenced e-business, as discussed further below.

The Business Model Canvas (see Figure 2.4 below) was propounded by Osterwalder and Pigneur (2010) based on the business model ontology developed by Alexander Osterwalder in 2004. The Business Model Canvas provides a conceptual understanding that can inform development of a social enterprise business model; however, this study sought rather to inform the development of this social enterprise business model with the Salience stakeholder model introduced above.

In line with the study's objectives the first objective of the study looks at identifying the key stakeholders in the context of Food for Us mobile application, using the Salience model. Hence, the Salience model was useful in the categorisation and in describing the stakeholders in terms of their salience characteristics. This involved giving attention to the categories of key stakeholders identified above, namely 1) latent stakeholders, who tend to be dormant with power (coercive, utilitarian and symbolic) but who have high potential to acquire a second attribute and become more salient stakeholders (Burga & Rezania, 2016); 2) discretionary stakeholders, who have legitimacy as an attribute and who do not necessarily have to engage further (Neville & Menguc, 2006); and 3) demanding stakeholders, with urgency as an attribute, but who may not be willing or able to acquire other attributes necessary to move them beyond latency salient status (Mitchell, Agle & Wood, 1997).

Understanding the stakeholders in line with the three propositions (1a, b and c) outlined above, provides an understanding of the social enterprise elements to consider in the designing and developing of a sustainable business model. Hence, the Salience Model provides an overlay understanding of the stakeholders and their roles in the business model development which is critical in this study. Integrating such knowledge and understanding enhances the development of a sustainable social enterprise business model, which was the purpose of engaging with the business model canvas development process in this study. Therefore, integrating the two conceptual frameworks provided inquiry and analytical lenses which helped to unlock a secondary layer of analysis beyond the stakeholders in the process of developing a sustainable business model for the Food for Us project, as elaborated further in this section, as well as via the empirical analysis in Chapters 4–6 of this study. This work was necessary in achieving objectives 2 and 3 of the study. This requires further discussion on socially focused business entities, and relevant business canvas development approaches, especially for e-technology informed businesses in this context.

2.3.2 Socially focused business entities and business modelling

- **Social enterprises and social entrepreneurs**

Social entrepreneurs are classified as change agents who have a specific focus on creating sustainable social value, engaging in continuous innovation, and exhibiting a high level of accountability to all stakeholders and outcomes (Dees, 1998 cited in Ali, 2015: 18). Entrepreneurship is most often viewed as a means of beneficiation, with the sole purpose of creating economic value. However, with the introduction of social entrepreneurship, the focus has shifted towards the inclusion of social and environmental value creation (Carraher, Welsh & Svilokos, 2016). Social entrepreneurships operate with the objective of solving specific issues within the social economy (Dees, 1998 in Ali, 2015). One of the most common issues faced by social enterprises is financial constraints (Calic & Mosakowski, 2016). This could be attributed to the fact that social entrepreneurs do not necessarily orient their social enterprises around finance generation strategies but, rather, social responsibility. This means the investors, commercial lenders or private equity investors prefer to invest in enterprises with actual "worthwhile" social and financial returns (Calic & Mosakowski, 2016), with the former often overshadowing the latter, thus creating sustainability problems for the enterprises.

An overemphasis on the social value of social enterprises, together with a lack of experience and expertise in financial planning and business model development, aligned with social *and* economic viability, can also be accompanied by business-related weaknesses such as the lack of a financial track record and credibility. This can further reduce the likelihood of sustainable beneficiation (social, economic and environmental), and of obtaining funding (Schoonhoven & Romanelli, 2001), and can also affect sustainable business planning. This confluence of issues often results in social enterprises relying heavily on philanthropy and, more recently, crowdfunding, in order to receive the necessary funding for operational activities (Calic & Mosakowski, 2016). This also creates longer term sustainability problems for social enterprises and a reliance on a short-term project model, rather than longer term self-sustaining strategies for social enterprise development. Further exacerbating the situation is that the limitations in funding, and the tendency towards a reliance on short-term project funding cycles of funders and grantmakers, can have cascading effects on the way business models are designed for social enterprises (Goyal, Sergi & Jaiswal, 2016). This requires

engagement with business model design, albeit in potentially new or different ways that also accommodate the social value creation interest of social enterprises.

- **Business model design**

Amit and Zott (2015) posit that the advancements in technology have revolutionised the way business is conducted. Osterwalder and Pigneur (2010: 14) define a business model as the "*rationale of how an organisation creates, delivers, and captures value*". While Malone et al. (2006) define a business model as a description of the activities that a company performs to generate revenue or other benefits, and the relationships, information-sharing and product flows a company has with its customers, suppliers and complementers. Lastly, Zott and Amit (2010) define business models as a system of interdependent activities which are carried out by an organisation and its partners, as well as the mechanisms that connect these activities to one another. An activity, in this case, is defined as any form of human, physical and capital resources that are involved in the execution of the business model (Zott & Amit, 2010). Zott and Amit (2010) further urge the need to be cognisant of the organisation's objectives when designing the business model, since the business model design is critical in driving the ultimate success or failure of the business.

There are various business models, but in this study the Business Model Canvas of Osterwalder and Pigneur (2010) is the main focus, as elaborated below. However, it is interesting to also consider developments in technology as these relate to business model development. Developments in technology have resulted in companies changing the way they conduct their daily business operations (Dubosson-Torbay, Osterwalder & Pigneur, 2002; Rowley, Shipilov & Greve, 2016; Mishra & Dwivedi, 2011; Mishra, 2013; Ali, 2015; Peterson, Adams & DeMuro, 2015). This has resulted in the emergence of an e-business model design, which has the same goals as conventional business models but is based on the foundation of allowing clients access to the products through an online platform (Dubosson-Torbay, Osterwalder & Pigneur, 2002). Dubosson-Torbay, Osterwalder and Pigneur (2002) created a framework for e-business models which is comprised of four principal components (see Figure 2.3), namely:

1. The products and services offered by the organisation, their value proposition to the client and the client's willingness to pay

2. The relationship capital created and maintained by the organisation, in order to fulfil the value proposition and generate sustainable revenue
3. The infrastructure and network of partners required to create value and maintain customer relationships
4. The financial aspects such as the cost and revenue structure for the above-mentioned components

Figure 2.3 shows the various components of e-business models discussed above.

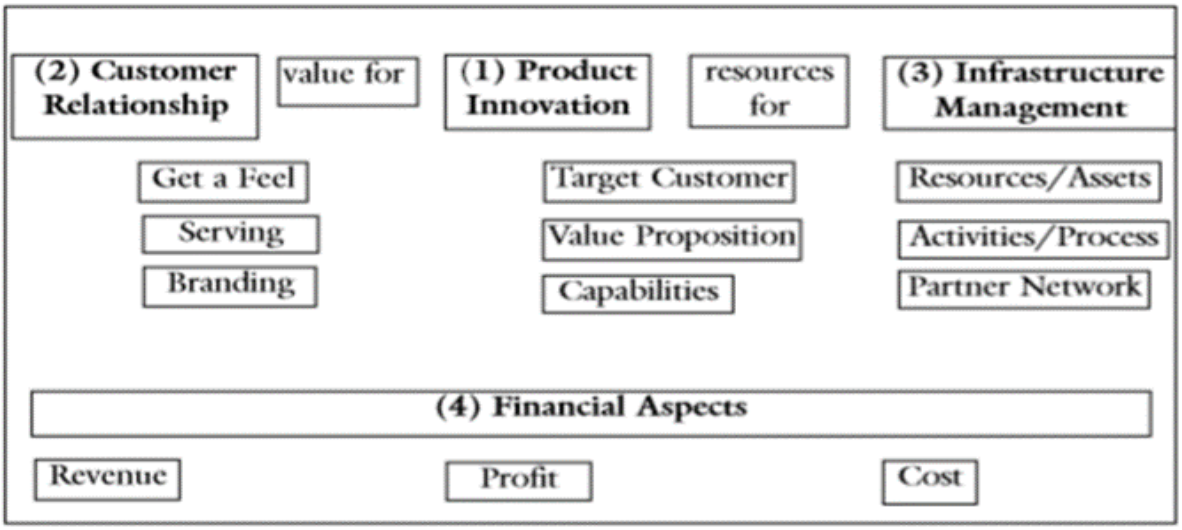

Figure 2.3: Components of E-business models (Source: Dubosson-Torbay, Osterwalder & Pigneur, 2002)

The insights above on e-business models can be considered in relation to the more prominent later work of Osterwalder and Pigneur (2010), who proposed the Business Model Canvas (see Figure 2.4 below), which is a visual chart template divided into blocks that supports the development of new, or documents existing, business models. The business model canvas is a co-creation of Osterwalder and Pigneur that emerged from their work with many practitioners, and which is based on the business model ontology developed by Alexander Osterwalder in 2004. Its elements usually describe a company's or product's value proposition, infrastructure, customers, and finances. In essence, the business model is about nine basic building blocks that show the logic of how a company intends to make money. These nine blocks cover the four main areas of a business namely, customers, offers,

infrastructure, and financial viability (Osterwalder & Pigneur, 2010). The nine blocks are shown in Figure 2.4 below. The elements of the business model canvas are outlined in more detail following the Figure 2.4.

<table>
<tr><td colspan="5">Business Model Canvas</td></tr>
<tr><td rowspan="2">Key Partners</td><td>Key Activities</td><td rowspan="2">Value Propositions</td><td>Customer Relationships</td><td rowspan="2">Customer Segments</td></tr>
<tr><td>Key Resources</td><td>Channels</td></tr>
<tr><td colspan="2">Cost Structure</td><td colspan="3">Revenue Streams</td></tr>
</table>

Figure 2.4: The Business Model Canvas (Source: Osterwalder & Pigneur, 2010: 226)

Customer Segments

Customer segments refer to the different groups of people or organisations an enterprise aims to reach and serve (Osterwalder & Pigneur, 2010). Essentially, customer segments are the targeted audience for a business's products and/or services. Customers are one of the most important elements of the business. Without (profitable) customers there is no company sustenance for long. Customers can be grouped into distinct segments based on their commonalities in needs, behaviours or other attributes. Osterwalder and Pigneur (2010) posit that organisations should carefully define which segments of customers to serve and which segments to ignore in designing a business model. They argue that a business model should be carefully designed around a strong understanding of specific customer needs. There

are several types of customer segments, for instance: the mass market, niche market, segmented, diversified and multi-sided markets, to mention just a few.

Business models targeting the mass market customer segment tend to focus on one large group of customers with broadly similar needs and problems, as in the case of the consumer electronics sector (Goyal, Sergi & Jaiswal, 2016), while business models targeting niche markets cater to specific, specialised customer segments. Niche market business models are tailor-made to meet specific requirements of the specific niche markets such as in the case of supplier-buyer relationship business models (Rowley, Shipilov & Greve, 2016). Business models targeting segmented customers distinguish between market segments with slightly different needs and problems. Segmented customer business models offer specific and categorised services or products to their customers even though all the customers have similar needs and problems (Mishra, 2013; Peterson, Adams & DeMuro, 2015). A good example is the banks' credit offerings where customers' assets or possession value are used to distinguish customers (Osterwalder & Pigneur, 2010); for instance, using customers' monthly salaries as benchmarks to categorise customers in qualifying for a certain loan facility (*ibid*, 2010). Diversified customer business models are different to all the customer business models discussed above, as they serve two unrelated customer segments with very different needs and problems (*ibid*, 2010). The strategic rationale behind diversified customer business models are to provide specialised services to the same segment's customers at different levels (Mishra & Dwivedi, 2011; Ali, 2015). Lastly, multi-sided market business models target two or more interdependent customer segments. A good example is a free newspaper enterprise that needs a large reader-base to attract advertisers and at the same time needs a large base of advertisers to finance production and distribution. Both customer segments make the business model work (Osterwalder & Pigneur, 2010). In summary, the above differentiations *in customer segment business modelling caters for specific customers with specific problems and needs*.

Value Proposition

The Value Proposition describes the bundle of products and services that create value for a specific Customer Segment (Osterwalder & Pigneur, 2010). The value proposition solves (or seeks to solve) customers' problems or satisfy customer needs, thereby confirming customer preferences for one organisation over another. In other words, "*value proposition is an*

aggregation, or bundle of benefits that a company offers to its customers" (*ibid*, 2010: 23). According to Osterwalder and Pigneur (2010) value proposition creates value for a customer segment through a distinct mix of elements catering to that customer segment needs. Value can be quantified in terms of price, or speed of service, or descriptive (qualitative) aspects, for example in the form of customers' experience(s). Some of the elements that can add to customer value creation are as follows:

> *Newness:* This includes provision of entirely new set of needs/services that customers previously did not perceive because there were no similar offers on the market. For example, an ethical investment fund service on mobile telecommunications. The ethical investment fund becomes a new offer of its own kind, and has little to do with the technological industry.
>
> (Osterwalder & Pigneur, 2010)

> *Performance:* Value proposition has been traditionally devised around improvements in product or service performance. For example, the computer technology sector traditionally relied on providing the most powerful computers on the market. However, improved performance does not guarantee corresponding growth in customer demand, as was in the case of faster PCs, more RAM space, and better graphics in the recent years.
>
> (Osterwalder & Pigneur, 2010)

> *Customisation:* Customisation commonly referred to as tailoring products and services to the specific needs of individual customers or customer segments is known to create value. Hence, the reason the concepts of mass customisation and customer co-creation gained importance and popularity in recent years because of its ability to balance both customer needs and economies of scale.
>
> (Osterwalder & Pigneur, 2010)

> *Price:* Pricing is one way of satisfying the needs of price-sensitive customer segments. Low-price value propositions have important implications for the rest of a business model. One example of a low price-based value proposition is the Nano, a new car designed and manufactured by the Indian conglomerate Tata. Its surprisingly low price makes the automobile affordable to a whole new segment of the Indian population.
>
> (Osterwalder & Pigneur, 2010)

The list of elements is extensive and includes making the products or services accessible to other customer segments; reducing the risks that customers incur when purchasing products or services; branding of the products; using superior designs; increasing product or service convenience or usability. All these strategies increase value proposition to customers and increases their priorities and loyalty as well.

Channels

Channels refers to the communication channels the company uses to reach its customer segments to deliver a value proposition and includes communication, distribution and sales channels. According to Osterwalder and Pigneur (2010) channels are customer touch points that play an important role in the customer experience. Channels serve several functions, including:

- Raising awareness among customers about a company's products and services
- Helping customers evaluate a company's Value Proposition
- Allowing customers to purchase specific products and services
- Delivering a Value Proposition to customers
- Providing post-purchase customer support

Channels have five distinct phases as highlighted above and include: Awareness, Evaluation, Purchase, Delivery, and After-sales. Each channel can cover some or all of these phases. Some channels are direct and others are indirect, and, lastly, some channels are owned channels while others are partner channels. Osterwalder and Pigneur (2010) encourage the need to find the right mix of Channels in order to satisfy customer needs in bringing a Value Proposition to market. An organisation chooses how to reach each customer and, as stated earlier, channels can be owned and/or direct, such as an in-house sales force or a website, or they can be indirect, such as retail stores owned or operated by the organisation. In addition, some channels can be partner channels and indirect, such as a wholesale distribution, retail, or partner-owned website (*ibid*, 2010: 27).

Customer Relationships

Customer Relationships describes the types of relationships a company establishes with specific Customer Segments. Relationships range from personal to automated, and customer relationships may be driven by the following motivations:

- Customer acquisition
- Customer retention
- Boosting sales (upselling)

There are several categories of customer relationships and these include:

- *Personal assistance*

This relationship is based on human interaction where a customer communicates with customer representatives for any specific needs. This may happen on site at the point of sale, through call centres, by e-mail, or through other means.

- *Dedicated personal assistance:* Dedicated personal assistance involves dedicating a customer representative to a specific client. This is the deepest and most intimate type of relationship and develops over long periods of time. For instance, in the private banking services there are dedicated bankers who serve high net-worth individuals.
- *Self-service:* In a self-service relationship, the organisation maintains no direct relationship with customers. The company provides all the necessary means for customers to help themselves.
- *Automated services:* Automated services mix the more sophisticated form of customer self-service with automated processes. For instance, personal online profiles give customers access to customised services. Automated services recognises individual customers and their characteristics, and offer information related to orders or transactions.
- *Communities:* Companies are now utilising user communities to engage with their customers/prospects and to facilitate connections between community members. This includes online communities that allow the users to exchange knowledge and solve each other's problems. These communities can also help companies understand their customers better.

- *Co-creation*

Companies are migrating from the traditional customer-vendor relationship to co-create value with customers. A good example is Amazon.com which invites customers to write reviews and thus create value for other book lovers. Another method used is customer engagement in the designing of new and innovative products. In summary, customer relationships described above influence the customers' perceptions of the organisation and company and this can increase customer acquisition and retention. The next important aspect in business model is the revenue streams.

Revenue Streams

Revenue Streams refers to the cash a company generates from each customer segment. Osterwalder and Pigneur (2010) liken revenue streams to the arteries of a business model as the customers are like the heart. They urge organisations and companies to ask the following questions: "For what value is each customer segment truly willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each revenue stream contribute to overall revenues?" This can allow the organisation to generate one or more revenue streams from each customer segment and structure revenue streams strategically. Revenue streams may have different pricing mechanisms, from fixed list prices, bargaining and auctioning, to market dependent, volume dependent, or yield management. In essence, a business model can involve the following types of revenue streams:

- One-time customer payments
- Recurring or ongoing payments

Examples of revenue streams include:

- *Asset sale:* Revenue is realised from selling ownership rights to a physical product. For example, Amazon.com sells books, music, consumer electronics and more online.
- *Usage fee:* Revenue is generated by the use of a particular service, and the more you use the more you pay. An example is telecom operators such as MTN that charge customers for the number of minutes spent on a phone call or on internet.

- *Subscription fees:* Subscription fees is one of the most common options, and the revenue is generated from continuous access to a service. For example, a gym club sells its members monthly or yearly subscriptions in exchange for access to its exercise facilities.
- *Lending/Renting/Leasing*: Lending/renting/leasing is also a common revenue stream. Revenue is generated by temporarily granting exclusive rights to use a particular asset for a fixed period in return for a fee. This provides recurring revenues to the Lender, while the Renter or Lessee benefits from incurring the expenses for a limited time rather than bearing the full costs of ownership. A good example is that most business buildings in Grahamstown are let out or leased by the owners to lessees to conduct their businesses.
- *Licensing:* Revenue is generated from granting customers the permission to use protected intellectual properties in exchange for licensing fees. In this case, rights-holders generate revenues from their intellectual property without having to manufacture a product or commercialise a service. This is very common in the media industry, where content owners retain copyright while selling usage licenses to third parties.
- *Brokerage fees:* Revenue is derived from intermediation services performed on behalf of two or more parties. For example, credit card providers earn a certain percentage of the value of each sales transaction executed between credit card merchants and customers. A good example are brokers and real estate agents who earn a commission each time they successfully match a buyer and seller.
- *Advertising:* Revenue is generated from the fees for advertising a particular product, service, or brand on the platform. The advertising industry was traditionally dominated by the media industry and event organisers but, recently, there has been a high appetite from other sectors, including software and services providers.

In summary, revenue streams have a strong impact on the sustenance of the organisation and each revenue stream has different pricing mechanisms. The pricing mechanism makes a huge difference in terms of revenue generation. There are two main types of pricing mechanisms namely, fixed and dynamic pricing. Fixed pricing has predefined prices that are based on static variables like list price, product feature, customer segment, or volumes. While in dynamic

pricing, the prices are influenced by the market conditions and the following factors can change the prices: negotiations, yield management, real-time market (supply and demand systems) and auctions.

2.4 Conclusion

The need to understand the key stakeholders and their roles in order to develop a sustainable business model has been highlighted by literature. The assumption here is that a careful integration of the two conceptual theories discussed in detail in this chapter will provide the necessary conceptual understanding of the stakeholders involved, their role towards the Food for Us mobile application and, lastly, the means, tools and lenses to develop a sustainable business model for the social enterprise. The chapter contextualised the discussion on business models and stakeholder analysis in the need for developing a sustainable business model for social enterprises within a wider sustainability paradigm that takes social, economic and environmental value into account. Since the Food for Us application project was established as a social enterprise with an environmental value creation interest, but without adequate business or economic framing for its sustainability (problem statement in Chapter 1), the chapter focused on business model approaches, with emphasis on considering the elements of the Business Model Canvas of Osterwalder and Pigneur (2010). Overall, this chapter has proposed the need for integrating stakeholder theory and the business model canvas to understand and design a social enterprise business model. In addition, the chapter has provided the necessary theoretical background that also informs and guides the development of the methodological decisions carried out in this study, which are discussed in the next chapter.

Chapter 3: Research Methodology

3.1 Introduction

This chapter describes the methodological aspects of the study, and the research design decisions. It explains the selected methodological approach for the study, which is qualitative research. This means an interpretive, phenomenological research paradigm, which was considered to be the most suitable to address the study problem. The study is conducted as a qualitative case study, focusing on the Food for Us mobile application business modelling with stakeholders. Based on an elaboration of this adopted methodological study design, a detailed discussion follows on how the research was carried out and how the data was collected and analysed, in other words, I discuss the research methods and analytical approach used.

3.2 Research methodology and study design

3.2.1 Qualitative research methodology

The study used a qualitative research design and methodological approach. Qualitative research focuses on narratives, words and meanings, observations, stories, visual portrayals, meaningful characterisations, interpretations and other expressive descriptions of people's experiences and thoughts, and not on numerical representations and expressions (Ary, Jacobs & Razavieh, 2002). A qualitative methodology and research design was ideal for this research, since it was necessary to collaborate with key stakeholders through a series of workshops in the development of a sustainable business model for the Food for Us mobile application project, in order to address the research problem adequately and meaningfully. A qualitative design was also useful because the study intended to obtain as much information as possible from the key stakeholders and to gain an insider's perspective from the diverse stakeholders (Tuli, 2010). It also allowed for in-depth inquiry and thus a deeper understanding of the meaning and preferences of the key stakeholders in relation to a sustainable and ideal business model for the Food for Us mobile application (Lune & Berg, 2017).

3.2.2 Interpretive research paradigm

The qualitative approach is most often located within an interpretivist research paradigm. The ontology of interpretivism is one of multiple meanings and interpretations, focused on

processes and practices, with the focus of research being to create new, richer understandings and interpretations of social worlds and contexts (Saunders, Lewis & Thornhill, 2015). An interpretivist approach focuses on understanding and interpreting human experiences (Gale & Beeftink, 2005) hence, the approach was ideal for this study, which sought to understand stakeholder views on, and contributions to, the design of a business model for a specific project: the Food for Us mobile application. As indicated in Chapter 1 there were various stakeholders involved in the programme, and the study needed to obtain in-depth insight into their differential perspectives and understandings of the programme.

Kivunja and Kuyini (2017: 13) defined a research paradigm as "…the abstract beliefs and principles that shape how a researcher sees the world, and how s/he interprets and acts within that world. It is the lens through which a researcher looks at the world." The study employed the interpretive paradigm to acquire data from the key stakeholders in a series of brainstorming workshops to design and develop a sustainable and ideal business model for the Food for Us mobile application. The interpretive paradigm was suitable for this study because it allowed the researcher to make meaning from participants' views, opinions, lived experiences and suggestions (De Vos et al*.,* 2011).

3.2.3 Case study research design

As the research problem identified was specific to a particular social enterprise (the Food for Us mobile application) that was interested in creating social and environmental value, as well as sustaining itself through economic value creation, the study employed a case study design in which the Food for Us project was the case. The boundary of the case was the stakeholder engagement in informing the design of a business model for the Food for Us mobile application. Heale and Twycross (2017: 7) define a case study design as "…an intensive, systematic investigation of a single individual, group, community or some other unit in which the researcher examines in depth data relating to several variables". In this study, the case study design allowed the researcher to closely explore the research question from an insider's perspective (Tuli, 2010; Zainal, 2007). In addition, the case study was ideal for dealing with human behaviour and social interactions (Harrison, Birks, Franklin & Mills, 2017). According to Crowe, Cresswell, Robertson, Huby, Avery and Sheikh (2011) the case study approach allows the researcher to contextualise complex issues in everyday settings and explore a

subject in more detail. The researcher was aware of the contextual nature of the case study design, hence, generalisation of the study findings was not advisable (Yin, 2013). This study never desired to generalise the study findings, but readers of the study could refer or transfer (Mertens, 2007) study findings and insights to similar cases.

3.2.4 Population and sampling

The study population comprises stakeholders in the Food for Us project. These are: Experts, including the funders and partners, Consortium members, and the Users, including farmers and buyers. Sampling in positivist research seeks to take a part (representative) of the chosen population and generalise from this sample to the whole population (Greener, 2008). In qualitative case study research, 'sampling' has a different meaning, and can be better described as participant selection based on representivity, involvement in the case, relevant experience, and other criteria that will offer meaningful data or insight into the case. Cooper and Schindler (2006) define sampling as the process of selecting some elements in the population. In this qualitative case study research, a purposive sampling technique was applied to select sixty participants from the targeted population (Experts, consortium and users). Etikan and Alkassim (2016) describe purposive sampling as a purposeful or convenient selection of participants from a pool of respondents, while Yin (2009: 106) referred to these respondents as "data rich" respondents. Purposive sampling is also known as purposeful, judgmental or convenience sampling which simply refers to the intentional seeking or selecting of individuals or situations likely to yield a greater understanding of the phenomenon of interest (Creswell, 2003).

In this study, the researcher approached possible participants from the three key stakeholders groups based on the main criteria namely, that they had an interest in or had been participating in the first phase of the Food for Us mobile application project and its development and/or trialling. As it was not possible to involve *all* of the participants in the programme, the researcher drew on cumulative knowledge (developed in partnership with the programme implementers and researchers) of the multiple series of workshops held with the key stakeholders to choose 20 Experts, 20 consortium members, and 20 users (farmers and buyers) who were also willing to participate in the process of informing the design of a business model for the Food for Us mobile application. Thus, participants' availability and willingness to participate was a key consideration in the selection of research participants. To

start with, the researcher identified potential respondents using a purposive sampling approach from the previous meetings' registers and data log sheets, and then ascertained willingness and availability to participate in the study. Based on participants' availability and their previous experiences of, or interest in, the Food for Us mobile application and the design of a business model for this, the researcher then came up with a more consolidated list of 60 potential study participants. These participants were later invited more formally to participate in the study, and the researcher gained their consent to be involved in and participate in the three planned workshops that were necessary for the study outcomes to be realised in practice with the stakeholders concerned. Consent was obtained via a consent letter (see Appendix A) and all the participants granted their consent and showed this by signing the consent form. As can be seen from the above, considerable engagement was needed with participants to establish their participation in the study, before the final assent and consent processes were formalised and finalised. In the end, the following 'sample' or group of research participants agreed to be part of the study from three stakeholder groups (index codes for each group are indicated):

- **Users and buyers (F)** (20 stakeholders representing rural farmers, community organisations, local retailers and intermediary organisations who were facilitating links between farmers and buyers)
- **Consortium members (C)** (20 stakeholders representing all of the consortium partners – see Chapter 1)
- **Experts (X)** (20 stakeholders representing national government departments, national NGOs in the food and environmental sector, university partners, and other national level institutions involved in food system innovations)

Further detail on the participants as they related to each of these stakeholder categories and the study focus is indicated in Table 4.1 in Chapter 4. These categories reflect the salience of the stakeholders as discussed further in the analysis in Chapter 4.

3.2.5 Data collection techniques

Two key processes informed the data collection procedures. Firstly, the Business Model Canvas (Osterwalder & Pigneur, 2010), presented in Chapter 2, guided the data collection process. Through three stakeholders workshops a business model canvas was populated

which was later developed into the sustainable business model for the Food for Us mobile application. Secondly, it entailed the adaptation of the Delphi method, which is an iterative process used to collect and distil the judgments of various stakeholders (Skulmoski, Hartman & Krahn, 2007). This was done through adopting some elements of the Delphi method in the formulation of the three workshop guides (see Appendix B). The classic Delphi method is categorised by four key features (Rowe & Wright, 1999), namely:

1. Anonymity: this allows the participants to express their opinions freely without experiencing the potential pressure caused by any social factions, or the need to conform to a group. Decisions were judged on their merit as opposed to the person who made the contribution.

2. Iteration: this allows the participants to possibly refine their responses considering the progress made from one session to the next.

3. Controlled feedback: this allows the participants to be aware of the responses of other participants in a controlled manner and possibly to clarify and amend their own views.

4. Statistical aggregation of group responses: this allows the researcher to perform a quantitative analysis on the responses if they deem this necessary.

In this research I followed especially 1, 2 and 3 above as described in the research process below, and I used mainly descriptive statistical analysis where relevant as will be seen in Chapter 4 and 5, with the emphasis overall being qualitative analysis.

Figure 3.1 below shows a typical Delphi method applied to this study.

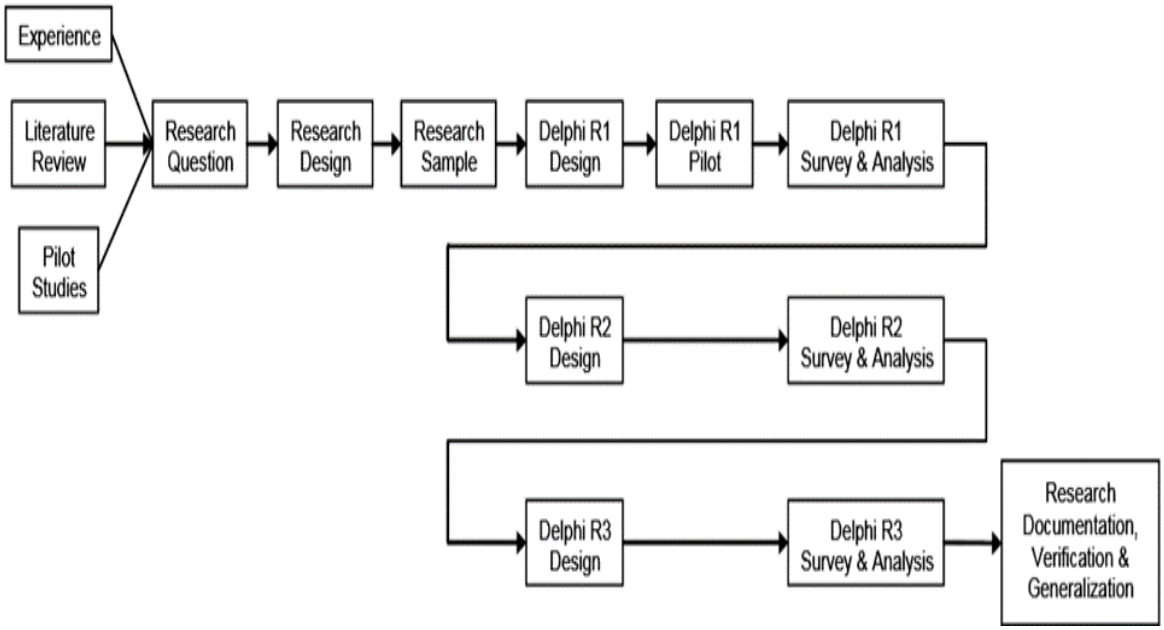

Figure 3.1: Delphi method (Source: Skulmoski, Hartman & Krahn, 2007)

The study adapted some elements of the classic Delphi method and the business model canvas to acquire data from the 60 key stakeholders in the three brainstorming workshops (Skulmoski, Hartman & Krahn, 2007). The adapted Delphi method is diagrammatically represented in Figure 3.2 below.

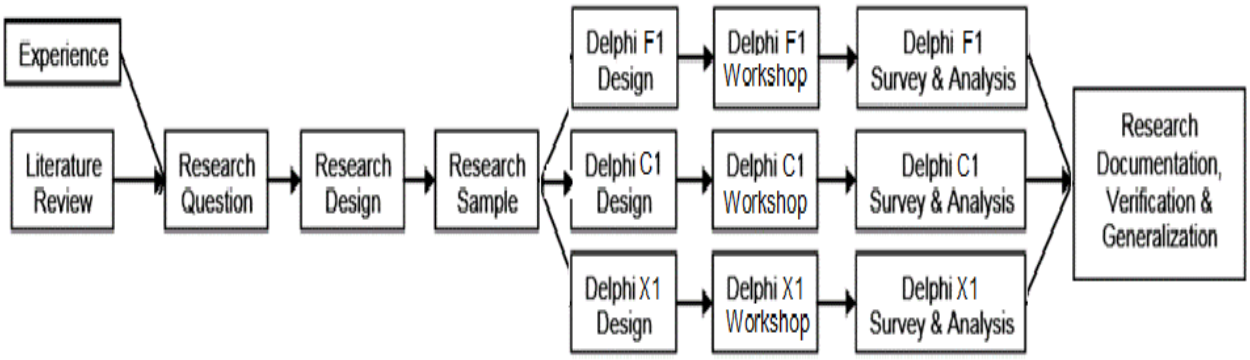

Figure 3.2: The adapted methodological framework

Drawing from the Delphi method, the study's methodological framework was developed as shown in Figure 3.2 above. Research questions were developed drawing from the two methods, these being the adapted framework and the business model canvas. Two distinct

workshop guides were developed to guide and inform the interactive probing process in the workshops. The two workshops guides consisted of the Users' (F1 – farmers and buyers) workshop guide (see Appendix C) and the Experts (X1) and Consortium (C1) workshop guide (see Appendix D). The workshop guides were tailor made to the stakeholders' Salience status. In addition, the two brainstormed workshop guides were pilot surveyed with colleagues and potential stakeholders for reliability and validity purposes. All the unreliable and invalid questions were moderated with the help of colleagues and the potential stakeholders in the pilot phase. The following procedures were followed during the data acquisition process in the three brainstorming workshops with the sixty stakeholders:

Workshop F1

Participants: **Users (farmers and buyers)**

The first workshop was conducted with the twenty Users (farmers and buyers) from the Greater Western Cape municipality of Worcester and the Rural Eastern Cape municipality of Raymond Mhlaba. The twenty participants were provided with consent forms which they read, understood and signed as a pledge to their willingness to be involved and participate in the workshop. Every participant was assigned an anonymous code known to the researcher and the assistants. The researcher led the sessions with the help of two research assistants.

The researcher would ask the participants a question and engage the participants. The participants were welcome to brainstorm. With the help of the two assistants, small green postcards were put on the table and whenever the participants felt ready and want to jot something down, they would freely pick up a small green postcard on the table and write on it. After writing their views, opinions, perceptions, they would hand over the card to the research assistants, who would write the question number, the sub-theme and the specific anonymous code for the participant (see Figure 3.3).

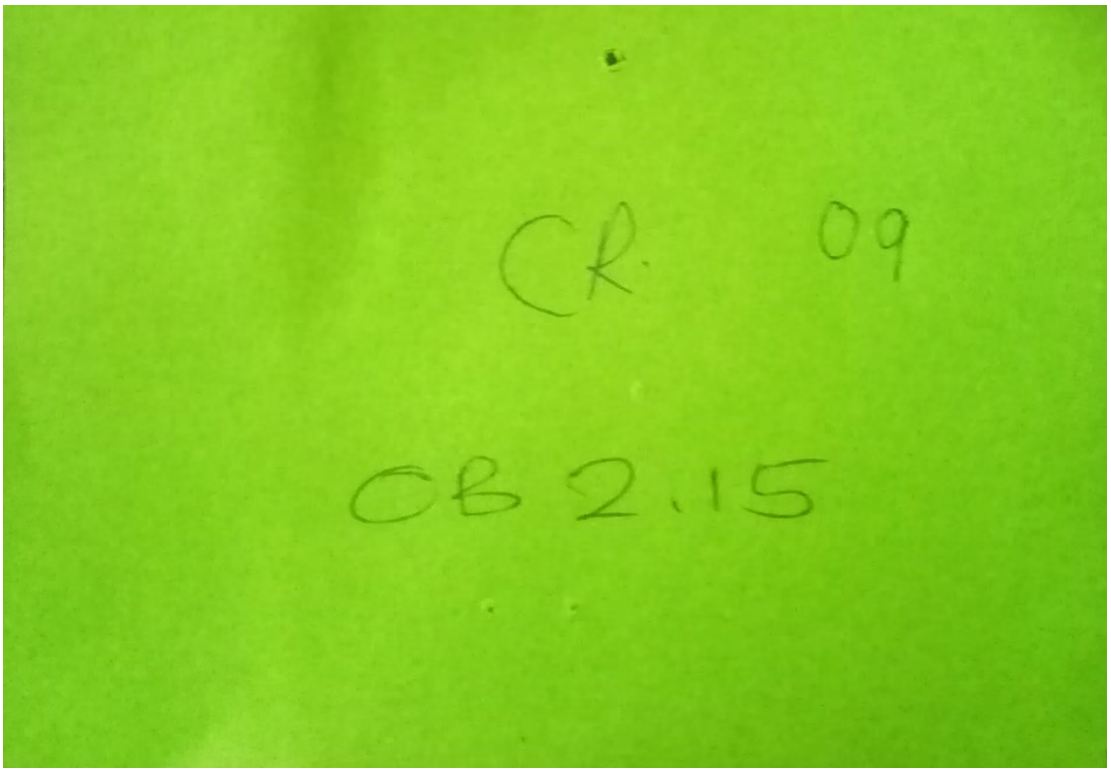

Figure 3.3: Anonymous coding for the users

The research assistants would also write down the participants' brainstorming points on the small green postcards and note the secret anonymous code of the participant at the back as highlighted in Figure 3.3. At the end of each question, the participants were given time to collectively or individually reflect and present their views using the small green postcards. The research assistants would pin the small green postcards onto the pin board in the hall (see Figure 3.4). Together the participants populated the business model canvas as suggested by Osterwalder and Pigneur (2010). The researcher photographed the F1 business model canvas for further study and comparative analysis. Each participant's views was represented on the business model canvas. Verifications and member checking process was done immediately following the workshop using the resultant business model canvas. The researcher went through all the responses in the nine tiles of business model canvas together with the participants, discussing the input with the participants. This provided an opportunity for participants to object, correct, or moderate their responses during the verification process. Below is the Users' (F1) business model canvas:

Figure 3.4: User's (farmers and buyers) (F1) business model canvas (final representation)

Workshop C1

Participants: **Consortium**

The second workshop was conducted with a group of twenty Consortium members drawn from the Environmental Learning Research Centre (ELRC); Pinpoint Sustainability; Creating Sustainable Value; Feedback; Sustainability Institute; Lead Associates; and Carbon Calculated. The twenty participants were provided with consent forms which they read, understood and signed as a pledge of their willingness to be involved and participate in the brainstorming workshop. Every participant was assigned an anonymous code known to the researcher and the assistants. The researcher led the brainstorming sessions with some help from the two research assistants.

The researcher asked questions and engaged the participants in line with the brainstorming workshop guide (see Appendix C). The participants were welcome to brainstorm. With the help of the two assistants, small yellow cards were put on the table and whenever the

participants felt ready to write down their responses, they would pick up a small yellow card from the table and write on it. After writing their views, opinions, perceptions they would hand over the card to the research assistants, who would note the question number, the sub-theme and the specific anonymous code for the participant (see Figure 3.5).

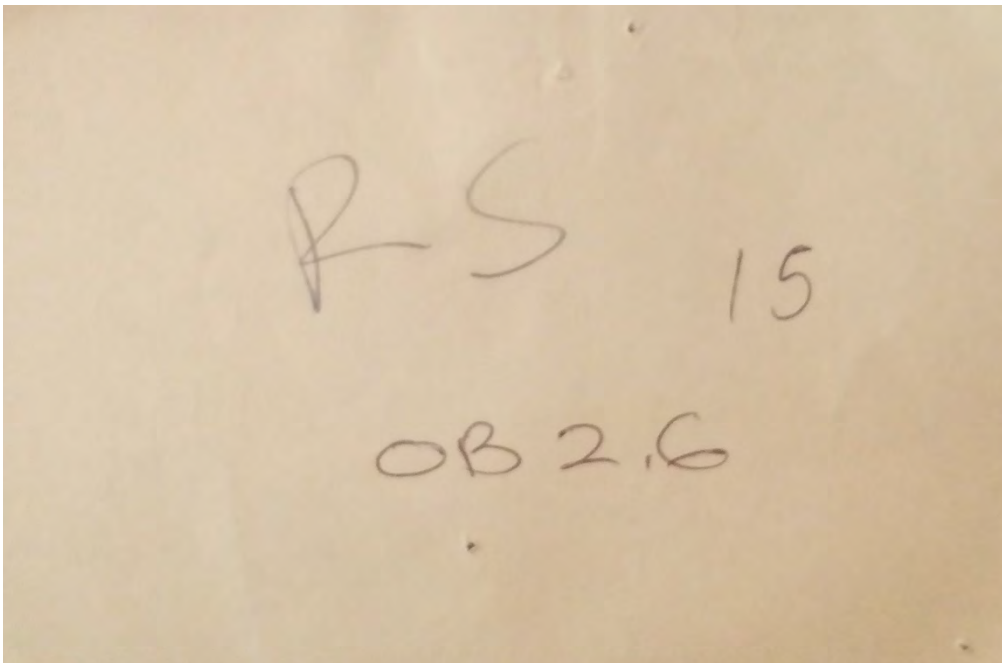

Figure 3.5: Anonymous coding for the Consortium stakeholders

The research assistants also wrote down the participants' views on the small yellow cards and wrote the secret anonymous code of the participant on the back as highlighted in Figure 3.5. At the end of the question or brainstorm session the participants were given time to collectively or individually reflect and represent their views on the small yellow postcards. The research assistants would pin the small yellow postcards onto the pin board in the hall (see Figure 3.6). Together, the participants built on the business model canvas as suggested by Osterwalder and Pigneur (2010). The researcher photographed the Consortium's (C1) business model canvas for further and comparative analysis. Each participants' views were represented on the business model canvas. Verifications and member checking process was done immediately following the brainstorming workshop using the resultant business model canvas. The researcher went through all the responses in the nine tiles of the business model canvas together with the participants. The participants were free to object, correct or moderate their responses during the verification process.

Figure 3.6: Consortium's business model canvas (final representation)

Workshop X1

Participants: **Experts**

The last workshop was conducted with a group of twenty Experts drawn from Sustainable Education Partners; Mobile App Developers; Business Modelling and Tech Transfer Experts; Social Innovators; Researchers in the Sustainable Food Systems and Local Food Economies Fields; and Funders. The twenty participant were provided with consent forms which they read, understood and signed as a pledge of their willingness to be involved and participate in the brainstorming workshop. Every participant was assigned an anonymous code known to the researcher and the assistants. The researcher led the brainstorming sessions with some help from the two research assistants.

The researcher asked questions and engaged the participants in line with the brainstorming workshop guide (see Appendix C). The participants were welcome to brainstorm. With the help of the two assistants, small blue cards were put on the table and when the participants felt ready to write something down, they would freely pick up a small blue card from the table

and write. After writing their views, opinions, perceptions they would hand over the card to the research assistants, who would write down the question number, the sub-theme and the specific anonymous code for the participant (see Figure 3.7).

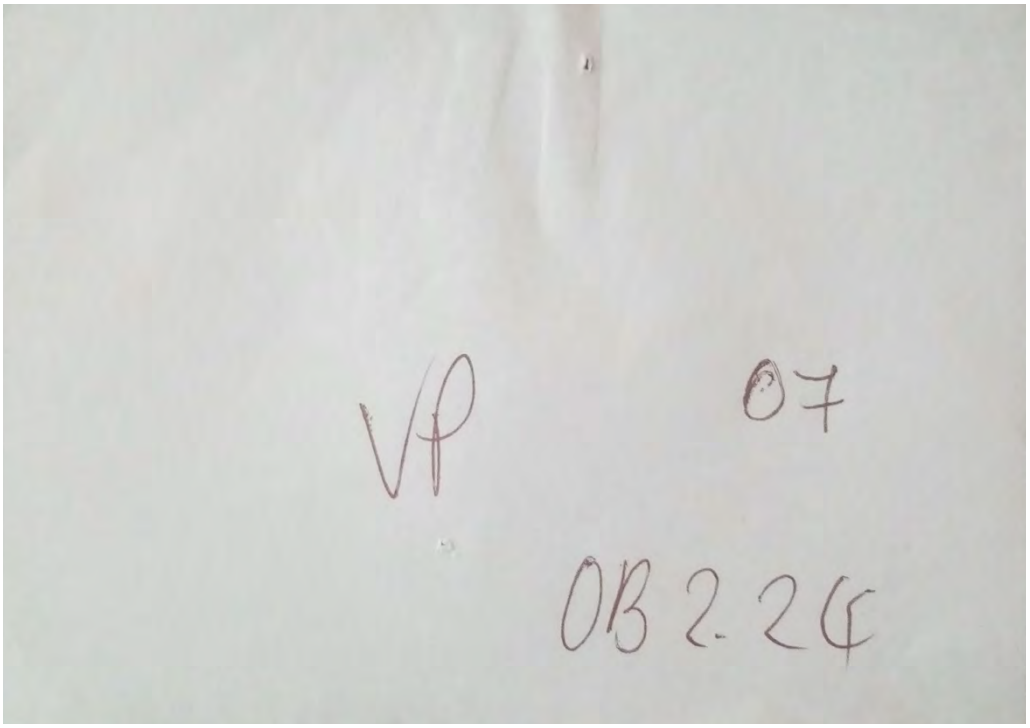

Figure 3.7: Anonymous coding for the Experts

The research assistants also noted the participants' views on the small blue postcards and wrote the secret anonymous code of the participant at the back as highlighted in Figure 3.7. At the end of the question or brainstorm session the participants were given time to collectively or individually reflect and represent their views on the small blue cards. As in the previous two workshops, the research assistants would pin the small cards onto the pin board in the hall (see Figure 3.7). Together, the participants built the business model canvas as suggested by Osterwalder and Pigneur (2010). As previously, the researcher photographed the Experts' (X1) business model canvas for further and comparative analysis. Each participants' views were represented on the business model canvas. And similar to the earlier workshops, verifications and member checking process was done immediately following the workshop using the business model canvas built. The researcher went through all the responses in the nine tiles of the business model canvas with the participants. The

participants were free to object, correct or moderate their responses during the verification process. Below is the Experts' business model canvas:

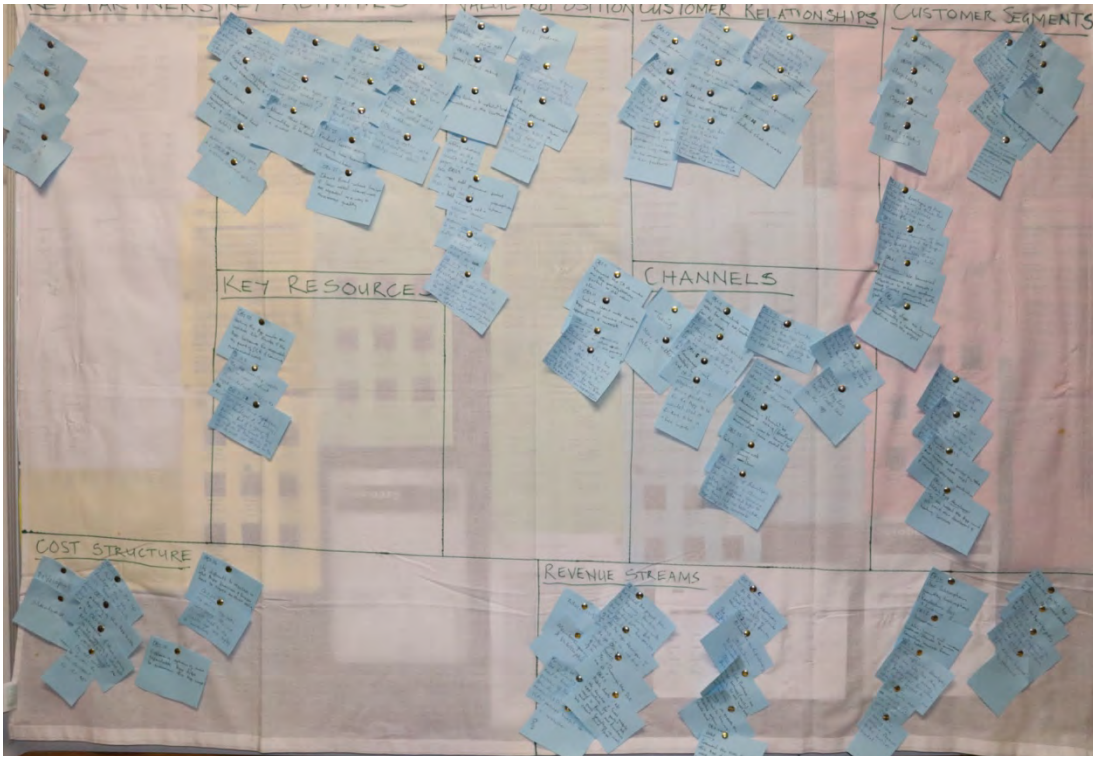

Figure 3.8: Experts' (X1) business model canvas (final representation)

3.2.6 Data analysis

Because all the data collected for this research was qualitative in nature, thematic data analysis methods were used due to its ability to systematically identify, organise and offer insight into any patterns or themes that might emerge across a data set (Braun & Clarke, 2012). The researcher interpreted for meaning throughout and made sense of the collective and shared meanings as well as the experiences obtained through the collection process (Braun & Clarke, 2012). All three data sets from the three workshops were analysed.

The researcher categorised and pinned down all of the responses presented on the small colour-coded postcards onto the pinboard, which was divided into the nine tiles of Osterwalder and Pigneur's (2010) Business Model Canvas to sort out and synthesise data generated from all three brainstorming workshops. For example, in workshop F1 with the Users (farmers and buyers), their responses were categorised by sub-theme. Under the broader sustainability element, the Users' responses were further categorised using the nine

tiles of the business model canvas where applicable. Sub-themes like “Key activities, Revenues streams, Customer segments”, among others, were used (see Figure 2.2). Hence, the initial thematic analysis was done as per the workshop with the participants (see Figure 3.4, Figure 3.6 and Figure 3.8) by assessing where the participants’ responses belonged on the canvas, although the questions were drafted also to fall within the sub-themes of the elements of a sustainable business model.

In the further thematic analysis the researcher collated all of the small postcards onto the white board in line with the question number and sub-theme. This was easy to achieve since all the small postcards were colour coded, with a source reference at the back by the two assistant researchers (see Figure 3.3, Figure 3.5 and Figure 3.7). The cards were pinned on the board according to question, colour code and sub-theme (see Figure 3.9).

Figure 3.9: Collated participants’ business model canvas

In the last phase of data analysis two analytical memos for the Users (see Appendix E), Experts and Consortium (see Appendix F) were developed to assist with data processing and data reduction. It is important to mention that only two analytical memos were developed due to

the fact that the participants' Salience status influenced the decision. There were some questions that were not covered in the Users' workshop guide because they were unnecessary to those participants, but were included in the Experts and Consortium workshops. Eventually, it was deemed necessary and more appropriate to use one workshop guide for the Experts and the Consortium since the questioning for both groups was the same. Broader categories namely, sustainability, social inclusion, diversifiable, value addition and value proposition, adapted from the social enterprise business model, together with the nine sub-themes adopted from the business model canvas, were used in the development of the analytical memos (see Appendix E and Appendix F) because of the study's interest in social enterprise development within a sustainability orientation as outlined in Chapter 1. Lastly, the researcher adopted the questioning from the two workshop guides onto the two analytical memos to guide thematic analysis and interpretations.

Data interpretation was multi-layered. The participants' responses were interpreted within the broader categories (social enterprise elements) and underpinned both the social business model canvas and the Salience model. In essence, data was interpreted towards:

1. Main Category: social enterprise element of business sustainability,
2. Sub-theme: the business canvas tiles of key activities, revenue streams, and value propositions which may be used to achieve sustainability,
3. Within the same sustainability theme, three layers of data were presented coded with the following prefixes: "F" for Users; "X" for Experts; and "C" for consortium.

This data was interpreted alongside the participants' Salience status towards the desired continuous operations of the Food for Us mobile application. This would mean that the same message from the three different stakeholders engaged in the brainstorming workshops were interpreted differently, as some had power to influence, some had the urgency to use the application, while some had one or two or three of the attributes, all of which influenced the way interpretations were done.

3.3 Confirmability, credibility, transferability and dependability

Confirmability was an important aspect in this study and refers to the degree to which the study findings can be confirmed or corroborated. In this study a thorough data acquisition record was produced as can be seen from the description above, to ensure confirmability.

This entailed keeping careful and accurate records of all of the data, journaling to keep track of the process of data generation, and keeping a well-referenced or index-coded trail of the data collected (e.g. via the index and colour-coded data sets shown in Figures 3.3–3.8), as well as a record of the data analysis process (as shown in the analytical memos) and the interpretation of the data, which is shared in the forthcoming chapters.

Credibility was ensured through data verification, consistency of data and process notes (Guest, MacQueen & Namey, 2012). Transferability was another important aspect of trustworthiness that was important in this study. Since the study was conducted as a case study, nature generalisation of the study findings is discouraged (Yin, 2013). However, transferability is possible in homogeneity contexts or settings for policy formulation, business model development, monitoring and evaluation purposes (Mertens, 2007). Lastly, dependability is an important quality measure in qualitative research, which refers to the consistency and reliability of the research findings and the degree to which research procedures are documented, thus allowing someone outside the research to follow, audit, and critique the research process (Sandelowski, 1986; Polit et al., 2006; Streubert & Carpenter, 2011). This aspect was made possible through journaling and two pilot surveys to measure the questionnaires' consistency and reliability, as well as careful analysis and reporting on the data, as will be seen in the following chapters where the research results are shared.

3.4 Ethical clearance procedures

The researcher applied for ethics clearance through the Rhodes University Ethics Committee, which was subsequently approved with reference number 0534 (see Appendix G). Specific index codes and anonymity logs were put in place such that data on the small postcards used in the study cannot be traced or linked to specific individuals (see Appendix D and Appendix E). Participants were required to confirm their attendance; however, their identities were not published on any platforms, thus ensuring their anonymity. Finally, participants were informed of their rights to discontinue from the research process. No participants discontinued from the research process, and all were engaged in the generation of data, and reflection on the data in the workshops, as outlined above. Throughout, the researcher

sought to work with care, rigour and respect for participants, as well as respect for truth and quality of data generation and analysis, and according to the principle of 'do no harm'.

3.5 Conclusion

This chapter has shared the research methodology and design used in the study. It offered a detailed description of how data was generated. The chapter has described how the main theoretical and conceptual frameworks were adapted to this study and aligned with an adapted Delphi method. The development of the research instruments, tools, and a description of their actual application in the data acquisition process was provided in a manner that acknowledges and reflects stakeholders as key contributors in this study. This chapter offers insight into how the study was designed to use an adapted Delphi method as a methodological framework when dealing with three diverse groups of stakeholders to design a sustainable business model suitable for social-impact business. It also indicates the ethical considerations in the study, and shares how the researcher sought to ensure quality and trustworthiness in the study.

The next chapter (Chapter 4), focuses on a presentation of the research findings.

Chapter 4: Presentation of Study Findings

4.1 Introduction

This chapter presents study findings and analysis. As shared in Chapter 3, the findings are derived from the data generated from three rounds of workshops with 60 participants, representing three stakeholder groups involved in the Food for Us mobile application development process.

The chapter begins with a more detailed rendition of the participants, and the specific index codes used to differentiate them (section 4.2). This is followed by an analysis of the key stakeholders, and their salience status (section 4.3), which is necessary for further interpretation of the social enterprise elements necessary for the business modelling (section 4.5).

The data is firstly **presented** (section 4.4) and then **analysed** further (section 4.5) more summatively, in relation to the business model canvas categories. Section 4.5 draws on, and offers a more summative analysis of section 4.4. In section 4.4 I draw in and make explicit the questions that have structured the enquiry, and in section 4.5 I cross reference to the data presented in section 4.4, in order to advance the analysis.

This chapter provides the empirical foundation for the social enterprise business model that was developed from the data generated, which is shared in Chapter 5. This chapter purposefully presents a 'thick description' of the data, as is necessary in case study research for the case to be convincing and rigorously constituted.

4.2 Biography data of the participants

The sixty participants who formed the study's sample are described in Table 4.1 below.

Table 4.1: Participants' biography information

Workshop	Participants		Code	Participant	Role
Workshop 1	Users:	Farmers (10)	F	F1	Farmer-Seller: these are primary users of the Food for Us Mobile Application. They locate buyers and are also located by the buyers via geolocation on the same mobile application. So they conduct their selling of surplus farm produce thereby reducing food waste.
				F2	
				F3	
				F6	
				F7	
				F10	
				F13	
				F14	
				F18	
				F20	
		Buyers (10)		F4	Buyers: these are primary users of the Food for Us Mobile Application. They use the app to locate the farmers who are selling their surplus farm produce via geolocation on the Food for Us Mobile Application. They are able to view most information about the seller (location, approximate distance) and set meeting points to finalise the purchase.
				F5	
				F8	
				F9	
				F11	
				F12	
				F15	
				F16	
				F17	
				F19	
Workshop 2	Consortium	ELRC (3)	C	C12	The lead organisation in the set-up of Food for Us project and the Food for Us Mobile Application.
				C5	
				C20	
		Pinpoint Sustainability (2)		C11	Experts on supply chain value creation, food and food waste systems, green skills and occupations.
				C4	
		Feedback (2)		C17	Transforming food systems.
				C6	
		Lead Associates (3)		C1	Tackling environmental problems using technology. They were consulted and guiding Experts in the designing of the trial version of the Food for Us Mobile Application.
				C2	
				C15	
		Sustainability Institute (2)		C8	Advise on food systems, social innovation, optimal resource flows, and transformative learning
				C10	
		Mobile App Developers (4)		C18	They designed and implemented the trial version of the Food for Us Mobile Application which benefited some 40 participants.
				C19	
				C13	
				C14	
		Carbon Calculated (2)		C9	Measures, reports on, and minimises greenhouse gas related emissions.
				C7	

		Creating Sustainable Value (2)		C3	Develops projects that can create sustainable forms of value: economic, social and ecological (at the same time), helped to lead the design of the Food for Us proposal development.
				C6	
Workshop 3	Experts	Sustainable Education Partners (4)	X	X2	Key stakeholders and project partners consulting in the designing and development of the trial version of Food for Us Mobile Application
				X3	
				X8	
				X14	
		Business Modelling and Tech Transfer Experts (4)		X7	Key stakeholders consulting in the designing and development of the trial version of the Food for Us Mobile Application but, mostly, biased to technological transfer to the society.
				X9	
				X10	
				X11	
		Social Innovators (4)		X5	Experts in social innovations, who became key stakeholders in consulting for the designing and development of the trial version of the Food for Us Mobile Application with a bias towards social acceptance and use
				X 12	
				X16	
				X17	
		Funders (4)		X1	Key stakeholders who funded the main project together with the trial version of the Food for Us Mobile Application through the Sustainable Lifestyles and Education (SLE) Programme under the United Nations' One Planet 10 Year Framework of Programmes for Sustainable Consumption and Production (10YFP).
				X4	
				X6	
				X19	
		Researchers in the Sustainable Food Systems and Local Food Economies Fields (4)		X13	Key stakeholders and consulting team in the designing and development of the trial version of the Food for us Mobile Application. they provided research based experiences on sustainable food systems and local food economies aspects in the designing of the Mobile Application.
				X15	
				X18	
				X20	

Table 4.1 above shows the participants' demographic information, the coding system used and the roles each participant played in setting up the Food for Us mobile application.

4.3 The key stakeholders in context of the Food for Us mobile application

The salience model was used to identify and sort the participants according to their salience to the designing and development of a socially sustainable Food for Us Mobile Application. To probe the salience of the stakeholders, the following question was asked in the three workshops with the Users, Consortium and the Experts:

Q1. Who are the key stakeholders in the context of "Food for Us" mobile application?

In the three respective workshops the participants (Users, Consortium, and Experts) were asked to identify key stakeholders in the Food for Us mobile application. Secondly, the participants were asked (see Q1a, Q1b, Q1c) to rate the identified key stakeholders' Salience status using a nominal rate system (1- being **Less** or 2- being **High/More**). Key stakeholders' salience status was rated towards their power, legitimacy, and urgency (see Appendix D: Analytical Memo 1 and Appendix E: Analytical Memo 2). The study findings are presented in Table 4.2

Table 4.2: Key stakeholders and their Salience status ratings

Key stakeholder		**Power**	**Legitimacy**	**Urgency**	**Source**
Users	*Farmers*	1	2	2	F1, F6
		1	2	1	X4, C8
	Buyers	2	1	2	F5, X1
		1	1	1	C5
Consortium	Mobile App developers	2	2	1	F4
	Others	2	2	2	C3
Experts		2	2	1	F3, X5, C4
Others	*Government (DRDAR)*	1	1	2	F2
	Government (DWYPD)	2	2	2	C7
	National Government (DTI)	2	1	1	C9
	Intermediaries (LED Offices)	1	1	1	C5

Table 4.2 shows the key stakeholders identified and how they were rated in terms of (salience ratings relating to their) power to influence, legitimacy and/or urgency towards the continued operations of the Food for Us mobile application. As explained previously (see Chapter 3, Data Collection Techniques and Data Analysis sections), the ratings were nominal between 1 and 2 and the source shows the data referencing. For example, F1 means User number 1, while X4 means Expert number 4 and C3 means Consortium number 3 (see Table 4.1). Table 4.2 shows that the participants (F1, F6, X4, C8) in the three workshops identified the farmers as the key stakeholders in the Food for Us mobile application and they possess high legitimacy (as the food producers) and high urgency (needing to sell their surplus food produce). The findings presented in Table 4.2 further show that participants (F5, X1, C5) identified the buyers as key stakeholders in the context of the Food for Us mobile application. The buyers were thought to possess high power (can determine what and when to buy) and urgency (market oriented, hence, they need the best and freshest food produce from the farmers). Together the Users (farmers and buyers) are the key stakeholders in the context of Food for Us mobile application.

Secondly, the study findings presented in Table 4.2 show that participants (F4, C3) identified the Consortium, especially the App Developers as the other key stakeholders in the context of Food for Us mobile application. The App Developers were thought of as having high power (since they designed and have the hosting rights of the Mobile App), high legitimacy (because they are the legal owners of the Mobile App) and high urgency (the continued use of the Mobile App keeps them relevant and profiting from the mobile application. Lastly, the participants (F3, X5, C4) identified the Experts as the other key stakeholders in the context of Food for Us mobile application. To add on, Participant F2 also identified the Government (DRDAR) department as another key stakeholder which only possesses high urgency but low power and low legitimacy over the Food for Us mobile application (see Table 4.2). While Participant C7 identified the Government (DWYPD) department as a key stakeholder of high power, high legitimacy and high urgency in the context of Food for Us mobile application. Participant C9, also identified the National Government (DTI) as one of the key stakeholders in the context of Food for Us mobile application. Lastly, Participant C5 identified the Intermediaries (LED Offices), as another key stakeholder in the Food for Us mobile application.

4.4 The key social enterprise elements to consider in designing a sustainable social business model

The study sought to determine key social enterprise elements that are necessary to consider in developing a sustainable social enterprise business model for the Food for Us mobile application. As indicated above, I use the questions used in the workshops as a mechanism to share the primary data findings in this chapter before these are more analytically discussed. These are organised around key categories relevant to social enterprise development and business model canvas, starting with beneficiation (section 4.4.1), followed by sustainability (section 4.4.2) and social inclusion (section 4.4.3) (i.e., aspects of the social enterprise business model). These were followed with aspects relevant to the business model canvas (section 4.4.4). As the research was probing social enterprise development elements which were then integrated into the business model canvas, it was necessary to first present all of the data according to the enquiry, and then develop a more integrated analysis focusing on the business model canvas. Thus, it is important to note that this analysis is carefully structured to offer **a social enterprise development lens on the business model process and business canvas modelling.**

4.4.1 Beneficiaries

In the three respective workshops with participants, the following question was asked:

Q2. From your own perspective who (which group) do you describe as the ultimate beneficiaries from the operations of Food for Us mobile application?

The participants' responses in the three workshops are presented in Table 3.

Table 4.3: Participants' responses on the ultimate beneficiaries of the Food for Us mobile application

Response	Source
Schools feeding schemes – the schools can now get sauerkraut fresh vegetables directly from the farmers in the community	F6
Buyers – the application has a geolocation system that helps buyers to locate the food suppliers without travelling in search	F8
Buyers in rural areas	F12
I think the buyers are the main beneficiaries because they are able to find what they want to buy easily as such they save time and money	F1

App developers – these are the people who were paid to develop the application	F4
Farmers– because we need access to market before our vegetables become rotten and we would have to plough them back into the soil	F14
As a buyer, yes, I am a key beneficiary. I am able to access the market right on my phone and that makes it convenient for my business	F8
For me as a researcher I feel like the farmers and buyers hugely benefit from this app as it enables them to interact socially while doing business	X14
Funders – we benefit by achieving the target and objective that is to reduce on farm waste thereby promoting sustainable production and consumption patterns	X6
As mobile developers we benefit financially and continued working with the project	C18
Us as the developers of the mobile application `I think the farmers are the ultimate beneficiaries since we developed the app for them to connect in selling and buying surplus food	C19
Lead Associates put much on serving the socially deprived people. We see the small-scale farmers as the key beneficiaries of the app as they are able to earn some money from the surplus.	C2
When this project came through to us at the ELRC, it aimed to reduce food waste. Therefore, we see that everyone including the farmers and social innovators benefitted from the app	C12
Since our target or main objective is to reduce carbon dioxide, we think we benefitted as Carbon Calculated because of the impact the app had on carbon reduction and on farm food waste	C8
As Lead Associates, we benefitted since we managed to subcontract or hire Experts to develop the Food for Us mobile application	C1
ELRC – we were the immediate beneficiaries since we were the initiative drivers and in the process Rhodes University was recognised and two MEds came out of the Food for Us projects	C2

In addition, Q3 below was asked in the three workshops respectively, with the participants findings are presented in Table 4.4.

Q3. As Farmers, Consortium and Experts, do you see yourself as key beneficiaries?

Table 4.4: Participant's responses

Response	**Source**
Farmer and buyer – it allows me to sell my produce but also to buy the produce that I don't grow from my neighbours	F7
Yes – as a farmer, I have reduced costs related to market search	F13
Yes, as a buyer, I am a beneficiary because I can support my local community members instead of buying old vegetables from the shops	F19
As a farmer, yes. I can now sell most of my produce on time reducing on market losses	F3

App developers, yes. We hosted the app and got paid our developers and hosting services	C13
Funders: as mentioned earlier on, our targets were met "promoting sustainable production and consumption patterns"	X4
As funders, we do not really see ourselves as beneficiaries. Instead, help others such as farmers and researchers to benefit from the social innovation of selling surplus food via the app	X1
I am a tech transfer expert, helping the farmers and the buyers to use the technology in their transactions. As such, I don't see myself as a beneficiary but, a middleman between the people and the technology	X9
As Carbon Calculated yes, we see ourselves as beneficiaries because the app is helping towards our goal of reducing food waste and consequently carbon footprint	C9
What we do here at Sustainability Institute aims at helping the vulnerable, we see this as the rural farmers and small business buyers we are not benefiting ourselves	C8
As I mentioned earlier on, as ELRC we are key beneficiaries since we were the immediate facilitators of the project, as an environmentally oriented department we achieve by the reduction of food waste and promotion of local food economies (house food security)	C20
Yes, as consortium we benefitted from the engagement. We strengthened sectorial relationships	C17
As Lead consultancy, we got an innovative out there and we profited from the initial 18-month funding of the main project	C1

4.4.2 Sustainability

Sustainability was identified as one of the key social enterprise aspects to consider when designing and developing a sustainable social business model. To determine what sustainability social aspects to consider for the Food for Us mobile application the following questions were asked:

Q4 If "Yes" to Q3 above, do you think as key beneficiaries, you should be the prime funders to the sustenance of the Food for Us mobile application?

The participants' responses are presented in Table 4.5.

Table 4.5: Participants' responses on prime funding the Food for Us mobile application

Response	Source
I don't think I can fund the application. I do my business and I count the costs. But if you tell me that funding the application will increase my profits then maybe I can consider it.	F5
Farmer – No, we are very poor, and we only produce a few for sale. Most of the produce is for family consumption. So, I don't see it as a possibility.	F13
Farmer – Yes, as I profit from the system it can be possible.	F2
No, there is a donor paying for us. In fact, the government must pay for us as they do with other applications like Mom Connect.	F7
Farmer – as a small-scale holder farmer it will be very difficult for me to afford funding something like this. Farming is my only source of income, and it is very tight.	F1
Mobile developers – No – we develop and host mobile applications for profit. We need to fund our functions and pay loyalties as well. We can't fund Food for Us	C14
Funders – Yes – through the SLE via Rhodes University.	X19
As the app developers, I think we cannot fund the operations of the app. If anything, we can just think of ways to help the low cost of running the application.	C18
Funders – we funded the project from the beginning. However, we cannot continue with the funding forever. But we really wish the operations of the app to continue. Maybe we can help get some well-wishers to sustain the applications.	X6
Here at Pinpoint, I doubt if we can contribute anything financially to the sustainability of the app. Maybe we can just help with ideas on how the operations of the application can continue.	C11
Lead Associates has been at forefront facilitating the operation of the app. We really wish to continue this. Maybe we can see within our company on how to support this app with further partners.	C15
Yes, ELRC – yes, we have been funding through human resource and research work (two Med students researched in the project).	C5
Lead Associates – No – our target is to provide expertise and knowledge and we also must profit from that. So, we are not the rightful funders.	C1
No – we offer research work pertaining supply chain value creation, food systems. We don't have budget for that kind of work.	X20
Sustainability Institute – No, we are mostly a partnering organisation with focus on research work in food systems, social innovation and transformative learning.	C10

Table 4.5 above shows diverse responses from the participants in the three workshops respectively. Importantly, the participants in the Experts and Consortium workshops responded in the capacity of their representative organisations or firms and not as individuals. While, in the Users' workshops, the participants (farmers and buyers) responded at a personal level. The responses above show how the individual salience status unfolded. The study went

on to inquire on the contributions respective participants would be willing to offer to sustain the financial needs of the Food for Us mobile application.

Q5. What contribution would you be willing to make towards the financial sustainability of the Food for Us mobile application?

The participants' responses are presented in Table 4.6 below.

Table 4.6: Participants' responses on the contributions they are willing to offer

Contribution	Response	Remitting way	Source
Payments	*I can't afford to pay*	-	F1
	Maybe R20/month	*Airtime*	F7, F14
	R15/month	*Data*	F13
	R12/month	*Airtime*	F2
	R50/month	*EFT*	F17
	Maybe a charge to my account after every successful sale. For example, like a commission to the app. If no buyers, no contribution for that month.	-	F6
	As a farmer, I think it is fair to deduct from what I would have sold on the app than pay in advance. What if I do not use the application, what will happen to my money?	-	F18
	I think it will be good for us to contribute to this application as farmers association. We can make a monthly financial contribution from the membership fees that the farmers have already paid.	-	F20
	UNEP granted the ELRC to pilot the app and participants were supplied with data but not anymore. There is a need for the app to be self-sustaining.	-	C12
	As Sustainable Education Partners, we can offer services (research), not cash. So, we hope such contributions would be useful in the near future.	-	X2

	Experts - as Experts this is difficult to say. Maybe respective organisations may decide and do not include us in future.		X10
	Consortium, I think this is a difficult question to tackle in this workshop because we are all representatives of different organisations we can't suggest or decide now but we can take it up with relevant departments.	-	C7
	Lead Associates – it will be difficult to say because we also host for profit but a way can be worked out as a discount or so.	-	C2
	ELRC – we don't have the budget anymore; we used all the UNEP funding supporting the app user's data provisions. As an institute we don't have that kind of budget anymore.	-	C12
	Suggestion that government adopt the app and it becomes a government app just like the pregnancy app.	-	X14
Fundraising	*Donor funding*	*EFT/ funding stream - (Rhodes University)*	F2
	Apply for funds from government like DRDAR	*DRDAR can send money to Rhodes*	F7
	Field shows	*EFT*	F1
	Market days – where we charge sellers for a stall	*I do not know*	F5
	I think as a buyer, it is not possible for me to fundraise for the app. Maybe if you involve in the events	*None as of now*	F11
	As funders, we can also do fundraise. Do a crowdfunding on the website	*Cheque payment*	X19
	Would undertake scouting for all calls for proposal that come up from all funding bodies, international and national.	-	C20
	Fundraising	*Bank transfer*	X5
	Lead Associates – call for proposals, volunteer services	*Lead Associates - through our*	C15

		finance department	
	ELRC – call for proposals	*ELRC – through Rhodes University finance system*	C20
	On our part as Pinpoint, we ask the people and donors we know to support the app, proposal writing to donors	-	C4
Corporate social responsibility (CSR)	*As the app developers, we can take a corporate social responsibility of reducing the cost of the operation. The willingness would be discussed by the management but there is a possibility*	-	C13
	As Lead Associates, we can a CSR of supporting the app (we need to lob with the management top consider it) *I know that my organisation is conscious about environment and sustainability. I believe this will be considered as CSR project. I will engage with the leadership on my return*	-	C2

Table 4.6 shows the participants' willingness to contribute in three broad categories: payments, fundraising and corporate social responsibility (CSR) towards the financial sustainability of the Food for Us mobile application. Added as well, is how the participants would be willing to channel the funds towards the operations of the Food for Us mobile application.

4.4.3 Social inclusion

The study went on to determine issues to do with social inclusion in the development of the sustainable social enterprise business model for Food for Us mobile application. The researcher asked the following question in all three brainstorming workshops:

Q6. Are there any group(s) of stakeholders that you view as key beneficiaries, but due to socio-economic status would be unable to contribute towards the sustenance of the Food for Us mobile application? If "Yes" please identify and propose how they may be accommodated?

Table 4.7 below presents the participant responses.

Table 4.7: Participants' responses on social inclusion

Response	Source
Yes, the bakkie sellers – who sell vegetables from their bakkies I don't think they can afford to contribute but I think they can be buyers on the app too	F13
There are some people who come to tell us about the availability of goods to buy but they don't use the app. If the app company if it also creates a group or menu for them to alert of the goods	F12
Yes, farmers – the government must subscribe for the black farmers (subsistence farmers)	F11
Yes, buyers – vegetable business is not very profitable so every cent count. The farmers must pay and the buyers should be exempted because we bring business to the community	F4
Farmers – because I am no longer struggling to find buyers and I can do it from the comfort of my home via the application	F6
As a researcher I feel like commercial farmers are excluded because they are regarded as big enterprises, but they sometimes have no markets, and the food is wasted. So, the app should be open to them	X13
Mobile app developers – they are benefitting but don't have the urgency to fund the app. They should maintain low profit margins	X3
Yes, some small scale and backyard farmers are already struggling financially without expecting them to fund something of this nature	X6
We at the ELRC feel like the application can also utilised by informal traders who recycle the e-waste. They can become part of the stakeholders to find markets their scraps	C12
The small-scale farmers may struggle to contribute to the app. `we are dealing with previously disadvantaged rural farmers are already in low-income bracket	C6
Farmers – they are very poor or financially challenged to self-sustain or promote the app. They should contribute per sale	C7
Buyers – most don't have the urgency hence can't commit to high funding of the app, they should contribute as per registration and monthly subscription	C10

Table 4.7 above shows the participants' responses to Q5, which aims to identify, in the participants' views, the key beneficiaries of the mobile application. The participants in the three brainstorming workshops suggested key beneficiaries who were to be excluded from the contributions or funding of the mobile application. They further suggested ways in which they think the key beneficiaries may be socially included, i.e., considering such factors as social status and economic standing. With regards to the relevance of this to social inclusion, if the app took on a pay-to-access model for all stakeholders, then this would socially exclude those without the economic means to pay. Therefore, the exclusion of the key beneficiaries from payment fosters social inclusion.

The study went on to determine other revenue streams or key activities that can be used to generate funds to keep the Food for Us mobile application self-sustaining.

4.4.4 Revenue streams/Key activities

The researcher probed on additional means of generating money for the mobile application to make it self-sustaining. The following question was asked to all the participants in the three brainstorming workshops:

Q7. What other means can be used to generate money from the Food for Us mobile application to make it self-sustaining and less reliant on key partners?

The participants' responses are presented in Table 4.8 below.

Table 4.8: Other means of generating money from the Food for Us mobile application

Response	Source
The app can also involve other business activities beyond what we currently do about just learning way food stuff are sold. You can involve adverts, etc.	F7
Web application – way more people can access and subscribe on web	F1
Making the companies and retailers pay to become buyers of fresh produce on the app	F20
Advertising and subscription – way users or subscribe for their produce to be uploaded and advertised on the app platform	F18
Charging commission to the farmers for any successful sale	F11
Adding some revenue features to the business model	X2
Some multi-level subscriptions for use or advertising space may allow for some revenue	X5

As the application developers, we see like the app itself can generate money if properly used to advertise various things and we charge on the adverts	X9
Donations: web hosting and increase customers or followers to generate loyalty benefits from web users	X7
User subscription – monthly subscription; registration fees; advertising fees	X2
Fundraising, CSR – on the likes of the app developers they should charge sustenance fees and not to prosper or profit from the app	C6
Continued research funding opportunities	C7
Approaching retail giants to own and fund it such as Spar	C3
Approaching government to take this over such as DTI so that it is rolled out as a national government app	C1
The ELRC has the expertise to mobilise both human and financial resources to support the other by transforming the app into a social learning tool that can have some subscriptions	C5

Table 4.8 above shows a range of revenue streams and key activities that can be employed to generate money to self-sustain the mobile application.

The study went on to determine the cost structures in sustaining the operations of Food for Us mobile application.

4.4.5 Cost structures in sustaining the operations of the Food for Us mobile application

To understand the cost structures in sustaining the operations of Food for Us mobile application the following question was asked by the researcher in all the three brainstorming workshops:

Q8. What do you think are the key costs that would be incurred in sustaining the operations of the Food for Us mobile application?

The study findings and insights are presented in Table 4.9 below.

Table 4.9: The cost structures in sustaining the operations of Food for Us mobile application

Response	Source
I think the owners of the app need to have some money to run the app so maybe they need to pay for internet and data	F7
Paying the app developers	F5
Data – we need data to access the app in order for it to be active	F16
Key costs will be to retain the web developers for the app	X2
Hosting of the app by the app developers and data on the part of the farmers and buyers	X7

Moderator – if there is going to be screening of what gets published or advertised on the app	X9
I think for us the app developers the key costs have to do with developing updates for the applications and also developing new functionalities that may be needed	C19
The app developers labour they need to keep the app updated, fix any problems experienced and maintain it	C6
Here at the Lead Associate we see that the key costs on the app users e.g. farmers to have data in order to use the app	C1

Table 4.9 above shows the key cost structures in operating the Food for Us mobile application. The intention was to ascertain how each stakeholder perceives the cost structures of the Food for Us mobile application. This understanding was vital to inform the perceived costs in the Food for Us mobile application and put in place strategies to ensure they are all maintained for the mobile application to be sustainable and inclusive of all its key stakeholders.

4.4.6 Value propositions

The study went on to determine the key value propositions the participants perceived from the Food for Us mobile application and how these can enhance the mobile application's sustainability. To achieve this, the researcher asked the following question in all three brainstorming workshops:

Q9. **What value does the Food for Us mobile application brings to you as key stakeholders?**

The study findings and insights are presented in Table 4.10 below.

Table 4.10: Perceived value propositions

Response	**Source**
As a buyer I think the simplification of getting what I need is the most value I get from the app	F12
I do get to know of existence of food to sell that I looked for but never found physically	F8
Farmer profit – I can sell most of my produce via the app at low or zero cost	F10
Quick online market – the application gives us a quick access to online market	F12
Better networking – the application connects us with the buyers creating a better relationship with customers	F7
It brings value to my field of interest in that it showcases innovation	X3
Fresh produce	X17

As a researcher, it gives new perspectives of managing food waste in the local economy. As such, I am able to propose further ways of managing food surplus	X15
Funders – achieve or promote responsible consumption and reproduction patterns through community projects	X6
It is an innovative concept that is valuable to the rural small-scale farmers thereby facilitating the local food economy. The value for me is on local food economy	C6
It brings value to the sustainable systems board of work	C5
It gives a networking opportunity, gives scholarly ground for students or researchers to work	X8
Realise objectives and have a chance to review our impact in the social development context	C12
Provides the ground for research (transformative learning)	C20
As a research centre here, the mobile application as it moves towards our goal of reducing food waste and ensuring food security	X18

Table 4.10 above shows the perceived value propositions that can motivate the participants to contribute to the sustenance of the Food for Us mobile application. Again, this question reflects collective and individual perceived value propositions and reflects how participants' Salience status plays a role in the development of a sustainable social enterprise business model.

4.4.7 Value realisation – what participants envisaged

The study went on to determine what value participants realised or would want to realise from the Food for Us mobile application. The researcher asked the following question in the three brainstorming workshops:

Q10. Would you like to maintain the existing value or add more functions and operations on the Food for Us mobile application to make it sustainable?

The study findings and insights are presented in Table 4.11 below.

Table 4.11: Perceived value that could be added (value realisation)

Response	Source
The app should bear in mind I am just a rural farmer therefore the use of the app should be simple for me to use	F6
I think the owner of the app can consider us buyers to add some buttons that show price of food stuff	F15
Add more value - there is a need for a feedback platform on the app for us to rate and report back on the services and the produce that we get	F17

Feedback push button to the app developers - so that we can express our challenges in using the app	F1
Payment system on the app - for legitimacy reasons there is a need to include a payment system on the app	F10
Adding advertising space on the landing and login pages, and charge local businesses for advertising there	X11
Definitely add a revenue stream. It is not sustainable because it does not have financial inflow	X16
Perhaps adding a tiered subscription for users such as standard and premium	X2
Yes, add payment portal. Include advertising subscription and add donation section	X7
We are flexible as app developers to add some functionalities and operations such as chat features to the application to make it more sustainable on its operations by attracting more users, hence more revenue	C13
A donation functionality for donating any food waste before it goes to landfills	C6
The aim is not an app that is inaccessible to people. Therefore, as much as I know, there should be revenue to sustain it. I don't know where the revenue will be sourced	C7
Yes, include transaction rating to encourage other users, include registration of non-SA users to make it more accommodative	C20
I think on our part as Carbon Calculated, maybe other functions could be those that could help to be aware of climate change through food management	C9
Add purchase or sale commission, add per transaction loyalty points to encourage more use	C1

Table 4.11 above shows participants' perceived value propositions from the Food for Us mobile application from the point of view of value that can still be realised from the initiative to develop such a mobile application. Table 4.11 further shows other functions and operations that the participants desire to maintain or add onto the Food for Us mobile application to make it financially sustainable. The researcher noted that not all the add-ons mentioned above will contribute to the financial sustainability of the mobile application, however all will improve the functionality of the product.

4.4.8 Cost management structures that need to be put in place for value addition to the Food for Us mobile application

The study went on to determine the cost management structures that needs to be put in place to support the addition of the above proposed operations and functions. The idea was to find ways and strategies to integrate the new proposed functions and operations maintaining the financial sustainability of the Food for Us mobile application. The researcher

probed further in the two brainstorming workshops with the Experts and Consortium respectively. The following question was asked in the two workshops:

Q11. What cost management structures would you put in place to support those new operations and functions on the Food for Us mobile application?

The study findings and insights from the two workshops are presented in Table 4.12 below.

Table 4.12: Cost management structures to make the new operations and functions financially sustainable

Response	Source
Exploring options more affordable app developers to maintain the app pages	X9
Train some farmers to be able manage and maintain the app pages so that it can a community owned and run app	C2
Instead of paying monthly subscriptions to be hosted by the app developers, why not buying the app hosting rights	C1

Table 4.12 above show the suggested cost management structures that could be viable in maintaining the Food for Us mobile application operations financial sustainable beyond addition of the new operations and functions suggested in Table 4.9 above. This question was deemed beyond the understanding of the Users (farmers and buyers) hence, it was omitted in the Users' brainstorming workshop.

4.4.9 Ethical considerations in advancing a business model for the Food for Us mobile application

The study went on to inquire about the necessary ethical issues to consider in the development and integration of the proposed functions and operations maintaining financial sustainability and social inclusion of the Food for Us mobile application. The following question was asked in the three brainstorming workshops:

Q12. What ethical considerations would you incorporate in designing the new operations and functions on the Food for Us mobile application to make it socially accepted and sustainable?

The study findings and results are presented in Table 4.13 below.

Table 4.13: Ethical considerations when designing and incorporating the proposed additional operations and functions on Food for Us mobile application

Response	Source
I want my identities to be secured from misuse. Also, the app guys should know who is using the app and their intentions.	F3
I would like to see isiXhosa in the app to help with access in the app for all	F4
I would like to include audio or voice narrations on the application	F9
A better interface - easy to be used by elderly people	F10
Accessibility by local people - language - I would design it in many languages to make all the people able to use it	F6
Privacy of my personal information like my ID number and where I stay on geolocation	F5
We know that there are apps that do not use the person's data like FNB and Capitec. It must be ethical to find a way for the app to be free (not to use any data) to allow use access	F12
Making it as accessible as possible to allow for a larger reach in the farming community – have the app whitelisted by the service providers	X5
Remove the SA ID number on the registration portal or add other alternatives to identity like passport numbers	X7
Including voice notes on the app would make it more appealing and accessible, include multiple languages like isiXhosa and isiZulu	X13
Here at the ELRC the issue of ethics is of great importance. As such, the new operations should reflect the wishes of the farmers for example most of them speak isiXhosa in the Eastern Cape	C5
Providing access in multiple languages especially isiXhosa for now to allow access for all	C6
As the app developers we need to make sure the personal information is well secured and not misused by the users of the app	C18
Ensure information and participants profiles security on the app	C4

Table 4.13 above shows suggested ethical considerations to incorporate when designing and integrating the proposed new operations and functions into the Food for Us mobile application.

4.4.10 Key activities that can be added or removed from the Food for Us mobile application to make it more sustainable

Lastly, the study went on to determine the key activities that can be added or removed from the Food for Us mobile application to make it more sustainable. The researcher probed in the three brainstorming workshops asking the following question:

Q13. What key activities would you add or remove from the current Food for Us mobile application to make it more sustainable?

The study findings are presented in Table 4.14 below.

Table 4.14: Key activities to make Food for Us mobile application more sustainable

Response	Source
Commission payment - after every successful sale, the app should deduct some commission at an agreed rate. Let's say 5 or 10% towards the operation of the app	F1
Point discount system - to encourage use of the app for many transactions or point system to calculate monthly transactions	F4
I would remove the registration as a buyer and a farmer because you can't be both	F2
Buyers or farmers' business registration number - what if I don't have a registration number but wish to buy fresh vegetables for the house	F8
As a buyer, I also need to post a message that I am looking so and so looking for food stuff to buy. I should not only be farmers alerting us of what they have	F17
Web application - include the application online for more users and income generation	F11
On app banking services - we should be able to pay on the app and get the receipt of payment for legitimacy	F9
I think the app can also consider issues like farmers learning from each other on how we do crop farming, so the app can also facilitate learning activities	F13
Online payment portal	X12
Adding subscriptions for users, adding advertising space for local business	X10
As a researcher, I also need to have an interactive and productive interface with the users of the app. I think the app should also include activities such as surveying food management in SA	X13
Allow other types of commodities to be traded on the app, e.g. e-waste	X9
Make the registration easy and accommodative to all	X16
Payment portal, subscriptions to raise funds towards the sustenance of the app	X2
Adding a payment platform online on the app	C5
As PinPoint we would recommend removing activities that may encourage fraud such as indicating personal details and such as including geolocations of the users	C4
Include a feedback portal to improve or increase subscribers	C8

Table 4.14 above show the key activities the participants wanted to be included, maintained or removed from Food for Us mobile application in order to make it more sustainable. The study went on to determine the social inclusion issues to consider in the developing a sustainable social enterprise business model for Food for Us mobile application.

4.4.11 Social inclusion expanded

As indicated above, the study includes a focus on social inclusion elements necessary to consider when developing sustainable business model. With the above insights, the study sought a deeper understanding on inclusion issues, and to this end, the study inquired into the customer segments of Food for Us mobile application, as well as possibilities for extending beneficiation or the customer segment, structures, revenue streams, value propositions, cost structure management, and ethical considerations. These are discussed here with a specific focus on social inclusion and are not a repetition of the above-mentioned discussion, but an explicit extension due to the study's interest in a social enterprise development business model process.

- Customer segment, with emphasis on inclusion

The researcher probed in the three brainstorming workshops about the customer segment. The following question was asked in the workshops:

Q14. Who are the customers of Food for Us mobile application?

The study findings are presented in Table 4.15, below.

Table 4.15: The customer segments for Food for Us mobile application

Response	**Source**
Farmers	F4, X2, X5, X3, C6, C3
Buyers	F4, x2, X5, X3, C6, C5
Consumers	F4
Retailers	F4, X2, C6
Vendors	F4
Schools	F4
Community	X2
Business people	C3

Table 4.15 above, shows the eight potential customer segments for Food for Us mobile application, as identified by the participants. It was of great importance to understand the customer segments in developing a sustainable social enterprise business model for Food for Us mobile application.

The study further probed for any excluded individual groups or community members who would benefit from the continuous operations of Food for Us mobile application. The researcher asked the following question in all the three brainstorming workshops:

Q15. Are there any other community members or stakeholders who would benefit from the continued operations of the Food for Us mobile application who are currently excluded from the Application?

The study findings and insights are presented in Table 4.16 below.

Table 4.16: Excluded customer segments for Food for Us mobile application

Response	**Source**
There are some middlemen who should also use the app	F2
Schools, retailers (wholesalers - PnP, Checkers), local food shops, LEDs	F10, X7
Those people who connect us farmers to potential buyers; agricultural extension officers who advertise us on cropping	F13
Buyers in town	F15, C2
Hospitality industry	X12
Commercial farmers	C8

Table 4.16 shows five customer segments that are currently perceived as excluded from the operations of Food for Us mobile application.

- Structures, with emphasis on inclusion

The study probed further, to understand the structures that are necessary to be included to make Food for Us mobile application more socially acceptable, accessible and user friendly. The following question was asked in all three brainstorming workshops:

Q16. What structures would you put in place to make the Food for Us mobile application more socially acceptable, accessible and user friendly?

The study findings and insights are presented in Table 4.17 below.

Table 4.17: Innovation structures to make Food for Us mobile application more socially acceptable, accessible and user friendly

Response	Source
Language - multiple languages, I would like to include isiXhosa and isiZulu on the app	F16
Interactive - voice narrations, I would want some voice narrations to help the elderly farmers and buyers who have short eyesight	F14
Quality graphics for easy and presentable marketing of produce	F8
Feedback - recommendation or testimonial sections for us to keep tracking our suppliers for quality produce	F2
The app developer should include some sections where the farmer can connect them through the app	F1
There must be some buttons where we can view the profiles of the seller and their locations	F12
Negotiating with service providers for the app to be whitelisted or for there to be free mode	X16
Voice notes – include voice notes for easy use and availability for old people	X5
Language – include multiple languages i.e. isiXhosa and isiZulu	X8
I think as a tech transfer person I would include language options so that the application serves people of different linguistic backgrounds	X10
Language – include vulnerable languages such as isiXhosa. Voice – include voice narration for those who cannot read	C9
Quality graphic design to be attractive	C1
Here at Lead Associates we respect privacy. As such, we will recommend personal information of the users be controlled by the app developers only	C15
Enable other operations to be usable offline	C10

Table 4.17 above show participants' suggested structural improvements for the app, in order to make the mobile application more socially acceptable, accessible and user friendly. The study went on to determine the revenue streams that would make the operations of Food for Us mobile application remain socialyl inclusive.

- Revenue streams, with emphasis on inclusion

In the three brainstorming workshops the following question was asked:

Q17. What other revenue streams could be used to make the Food for Us mobile application operational, while being socially inclusive?

The study findings and insights are presented in Table 4.18 below.

Table 4.18: Revenue streams to make Food for Us mobile application's operations socially inclusive

Response	Source
As farmers we are in cooperatives so if we can a system where a cooperative can contribute to the operation easy than me paying as an individual	F3
Maybe government can be asked for donations like the way they do at Shoprite they put small boxes on the till where people can drop coins	F5
Fundraising - as farmers we could fundraise to make extra revenue	F2
Donations after a successful sale - you can contribute as well towards the sustenance of the app	F16
Fundraising for the app – maybe through project proposal and funding writing	X2
Adoption and funding by government	X7
The app can be used as an advertising platform for example agricultural stores can advert pesticides and fertilizer om the app and the app developers, we charge some fee	X14
Donations – open up the app to the public to donate towards the social good	X5
As mentioned earlier, engage the government on the possibility for long term funding of the app as is with the Mom Connect App	C11
As Feedback, we are an organisation with possibilities of raising funds for running the app by talking to some donors	C6
Further fundraising for continued grant or funding	C9

Table 4.18 above, show participants' perceived revenue streams that would make Food for Us mobile application social inclusive. The study further determines customer relationship issues to maintain the Food for Us mobile application social inclusive.

- Customer Relationships, with emphasis social inclusion

In the three brainstorming workshops, the researcher asked the following question:

Q18: What can be done to make the Food for Us mobile application socially interactive?

The study findings and insights are presented in Table 4.19 below.

Table 4.19: Strategies to make Food for Us mobile application socially interactive

Response	Source
Training	F4
Loyalty points for every sale made on the platform	F1
Workshops	F19
Putting more advertising materials and colourful pages makes it interactive and attractive	F17
Accessibility language - I think including isiXhosa and isiZulu will make it socially interactive	F12

To be socially interactive the app should have a chat feature whereby we as buyers we can have a brief discussion with the sellers	F10
Including a place where farmers or buyers can ask for advice maybe on something happening to their crops or how to prolong shelf life of their produce	F1
Including an anonymous platform where users may choose to be anonymous on their feedback	X2
Toll-free number for easy inquiries	X14
Audio – include audio notes on the app	F20
The app should include a dial feature where a seller and buyer can discuss their trade and agree the prices	X10
Adding a farmer support chat or platform where farmers may support each other with their farming practices	C2
As the Sustainability Institute, we strongly recommend that the app should have options to watch videos that maybe of importance to farmers	C7
Include customer rating system - colour code system	C5
Include FAQ for people to quickly get answers	C4
Clients should be able to rate their transactions	C1

Table 4.19 above show the strategies perceived ideal by the participants in all the three brainstorming workshops. The perceived strategies are thought of as ideal in making Food for Us mobile application socially interactive, and potentially also more socially inclusive.

4.4.12 Data and information security

The study further probed data and information security of the customers of Food for Us mobile application. The following question was asked by the researcher in the brainstorming workshops with the Experts and Consortium:

Q19. What measures can be put in place to ensure data and information security of the customers?

The study findings and insights are presented in Table 4.20 below.

Table 4.20: Measures to ensure data and information security of the customers of Food for Us mobile application

Response	Source
Vetting users on registration, requiring FICA documents	X1
Security protocols aligned with POPI Act and other security of information protocols and registration	X20
Only the developers should have access to the user's info	X8
For us the app developers we will make sure that all users are verified of their identities, for example if we are dealing with SA users there are unique government ID numbers that can verified at DHA offices	X9
Information security encryptions	C1
Vetting systems – all registered users must have gone under a vetting system	C4
Verification after a completed transaction	C2
The users themselves must make sure they have gathered adequate information about the person before making business decisions such as payments	C10

Table 4.20 above, show measures and strategies to enhance the Food for Us mobile application's customer data and information security. This sphere of concern was deemed out of the sphere of influence of the Users of the mobile application to understand or provide feedback on, hence they were not included in this question. The concern was tackled only with the Experts and Consortium team who were thought to have a strong conceptual and technical understanding of the Food for Us mobile application and its relation to wider issues such as data management and information security.

4.4.13 Testimonials and/or feedback

The study further probed strategies for the users of Food for Us mobile application to provide feedback, give testimonials or recommendations based on the product or service rendered via the mobile application. The following question was asked in all three brainstorming workshops with the participants:

Q20. How can customers give feedback, testimonials or recommendations on the product or services received through the Food for Us mobile application without offending other parties?

The study findings and insights are presented in Table 4.21 below.

Table 4.21: Strategies on customer feedback, testimonials, or recommendations on the mobile application without offending others

Response	Source
There could be an anonymous rating system for the product and a separate one for the service	F2
Rating the buyer on their honesty to fulfil to buy what they ordered. Informing the app developer when the transaction is done	F8
There could be a number where we can send our complaints about each other then, the admin sends the feedback to the other person without tracing back to us	F11
Using the emoji to reflect on the quality of service or product	F6
Anonymous system using colour: green for good, yellow for best, red for bad	F16
We the app developers we will develop a section on the app where we will upload the testimonials of the users. The testimonials will be vetted before uploading	C19
Include a transaction or customer rating system	X1
Moderate system feedback channels, anonymous rating of products and services	X5
Feedback chat	X7
As a research centre, it is very important for us to hear the feedback from the app users. As such, the app developers should put your email on the app that can allow customers to reach out.	C12
Feedback platform that feeds to Food for Us then it sends on to the seller by admin withholding the identity of sender or rater	C6
Include the testimonial section on the app. For users to feedback and rate every transaction	C8
Rating systems, colour code, scale system	C5

Table 4.21 above shows the perceived strategies to make customer feedback, testimonials, or recommendations non-offensive on the Food for Us mobile application. The rationale was to maintain customer relations, but at the same time provide the opportunity to be truthful regarding the product or service provided and as such feedback, testimonial or recommendations remained an important integral part. The study went on to determine issues of diversification on Food for Us mobile application to make the business model self-sustaining.

4.4.14 Diversification of the Food for Us mobile application

The study further probed the diversifiable elements on Food for Us mobile application. There were two critical issues dealt with in this section, key activities, and channels to make Food for Us more diverse and attractive to use. These two spheres of concerns are discussed below.

- Key Activities, for diversification

In the three brainstorming workshops the researcher probed deeper to understand the key activities necessary to make Food for Us mobile application more diverse and be able to self-sustain. The following question was asked in all three brainstorming workshops:

Q21. Which other activities and additional functionalities would you wish to be included on the Food for Us mobile application to make the application more diverse?

The study findings are presented in Table 4.22 below.

Table 4.22: Additional activities or functionalities to make Food for Us mobile application more diverse and self-sustaining

Response	Source
Why can't the app not have a simple way of paying to the farmers? If this app is really good, then all transactions should be done right there	F1
Don't limit to produce market only but include some products like e-waste or farm waste products	F12
Allow trade of all waste such as glass bottles, beer bottles for recycling, metal, plastics etc for the people who do recycling	F4
Feedback push buttons or transaction rating after every sale via the app	F20
As I said earlier, the app can allow advertising of food stuff and allow us buyers to post what we are looking for	F4
Payment on the app - include the payment plan on the app itself and create instant receipts as proof of payment to prevent cash transactions	F16
The app can also involve selling of livestock than just surplus food	X14
Diversified the types of commodities traded, e.g. scrap metal, plastic or glass	X6
Payment portal – include a payment function on the app	C1
Verification section on the app, to vet or verify every part before completing a transaction	C8
We as a part of consortium we should be allowed to do our activities for example us at the ELRC we offer short courses that farmers can benefit, we can advertise through the app	C12

Table 4.22 above, show the participants' perceptions and views on the additional activities or functionalities to make the Food for Us mobile application more diverse and self-sustaining. The assumption here was that adding more key activities and functions to the Food for Us mobile application would make the mobile application diverse, attract more users and be able to generate enough funding to cover its operational costs. The study further aimed to determine the necessary channels to make the Food for Us mobile application diverse and self-sustaining.

- Channels, for diversification

In the three brainstorming workshops the following question was asked by the researcher:

Q22. What other communication channels can be incorporated into the Food for Us mobile application to provide feedback to the Software/App developers?

The study findings and insights are presented in Table 4.23 below.

Table 4.23: Communication channels to feedback to the Software/App developers

Response	Source
The app should have a section where I the buyer I am disappointed with a transaction, I must share with the developer	F1
Review section - for us the users to communicate or feedback the developers	F7
There should be a section where we can write complements or complains sending directly to the developers and not to show on the app	F15
Toll-free number must be included on the app	F17
Instant messaging application where you can ask questions and get instant answers	F13
Include the contact us section for a quick response	F3
For us the tech transfer people, we feel like the app can have some section to have an option to send a message to the app developer directly	X9
Chat function – include the customer feedback chat function	C3
Toll-free number, which can be used by the users to feedback the app developers	C4
Chat function on the app, to chat directly to the developers	C6

Table 4.23 above shows participants' responses regarding the necessary communication channels for customers to feedback to the Software/App developers. The assumption here was that communication channels on Food for Us mobile application would help in making necessary innovations. These channels would be for the customers to provide feedback directly to the Software/App developers on their experiences, difficulties, or excitements. Customers would thus contribute to making the App more attractive, user friendly, efficient, and effective in making transactions. This would attract more users and generate more revenue to sustain the operational costs of the mobile application. In addition, this back-and-forth feedback with the Software/App developers would increase customer relationships, trust, and confidence for users to continue using Food for Us mobile application.

The study further probed regarding decent communication structures that can be integrated on Food for Us mobile application to allow the users to share positive and negative feedback

on the product, transaction, or services via the mobile application. For a broader understanding, the following question was asked in all three brainstorming workshops with the participants:

Q23. What other decent communication structures can be included on the Food for Us mobile application to allow the customers and clients positive or negative feedback on a product, transaction, or service?

The study findings are presented in Table 4.24 below.

Table 4.24: Other decent communication structures to allow the users to positive or negative feedback on the product, transaction, or services via Food for Us mobile application

Response	Source
As a buyer I would like to rate the seller about their way of conducting business. So, you can put a rating track of stars on the app	F5
Rating using colour code	F2
We can rate each other using stars or points, if you give a bad product, the point is a minus and then if you get a good review, a product is added	F19
Rating system using emoji. Rating system after every transaction	F1
We as the app developers can structure a channel where we receive comments from both sellers and buyers to our mail and we act according to the comments	C13
Rating – colour code, emoji, stars	X3
Anonymity – should be anonymous rating or feedback. I wouldn't want to know or let the person I rate low know	X11
Users may rate each other in some way. It could be colour coded or points	X7
Users rate each anonymously using a point system. If you lose all points due to bad business, you are suspended	C4
The app developers can put in place rating systems that ensure reviews of transactions conducted in the app	C9
Reviews – where users review each other using colour code or emoji	C10

Table 4.24 above shows participants' responses to the icons to improve communication structures that can be incorporated into Food for Us mobile application. This would be to allow the users to provide positive or negative feedback on the product, transaction, or service without offending the other parties. The rationale of the question was to test the participants' views on including non-offensive communication channels on Food for Us mobile application which the users can confidently use and in this way encourage better and more truthful business. This may increase users and repeated transactions via Food for Us

mobile application if there is high traffic of positive feedbacks, thereby increasing revenue from the App as well help to self-sustain the mobile application itself.

The study further aimed to determine financial tools that can be incorporated into the Food for Us mobile application to facilitate safe payment channels. In two brainstorming workshops with the Experts and Consortium team the following question was asked by the researcher:

Q24. What financial tools should be incorporated in the Food for Us mobile application to facilitate safe payment channels?

The study findings and insights are presented in Table 4.25 below.

Table 4.25: Financial tools to facilitate safe payment channels on Food for Us mobile application

Response	Source
Instant EFT, PayPal, PayFast, Debt or Credit Card on the app	X2
There is a need to include EFT that is linked to the bank of the app developer	X10
An online payment portal with secured payment	C1
Banking options – instant EFT facility	C4

Table 4.25 above show the responses from the participants on the financial tools that can be incorporated on Food for Us mobile application to facilitate safe payment channels. This area of concern was thought of as more technical and conceptual beyond the users' understanding hence, only the Experts and Consortium team were asked to brainstorm and feedback. The study went on to determine the value addition aspects necessary to include or omit when developing a sustainable social enterprise business model for Food for Us mobile application.

4.4.15 Value addition

Four value addition elements were deemed necessary and important when developing a sustainable social enterprise business model, namely, value proposition, key activities, cost structure and resources. These are discussed in detail below.

- Value proposition related to value addition

In the three brainstorming workshops the following question was asked by the researcher:

Q25. What other functionalities can be incorporated to add value to the Food for Us mobile application?

The study findings are presented in Table 4.26 below.

Table 4.26: Other functionalities to add value to Food for Us mobile application

Response	Source
The app currency does not vet people. So, I can't know on the app if I am dealing with a legitimate or a good supplier	F6
Feedback rating on the product or service provided	F9
Vetting users upon registration would add legitimacy and sense of security	X5
Service or product rating	X2
Vetting system to uphold high confidence in the customers	X10
Verification features on the app will add value to the sellers and buyers as they see it more secure to do online than physical	C3
Video advertisement for quality marketing	C9

Table 4.26 above shows participants' suggestions of other functionalities that can be incorporated to add value to the Food for Us mobile application.

The study went on to determine the key activities necessary to add value to the Food for Us mobile application.

- Key Activities related to value addition

In the three brainstorming workshops with the participants, the following question was asked by the researcher:

Q26. What quality control structures can be put in place to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs?

The study findings are presented in Table 4.27 below.

Table 4.27: Quality control structures to ensure the key activities done on Food for Us mobile application are responsive to customer needs

Response	Source
As a buyer I want the sellers to be honest if they deceive me of their product, they must be recorded by the app owners for warning or even banned from using the app	F12
Moderation and monthly results on ratings	F8
Strike out non-performers or low-quality producers	F13
If a seller or a buyer on the point system gets to a particular low level of points because of bad products, they must be removed or suspended for a period of time	F11
The rating functions of the app experience so that the developers may be responsive to the users	X1
Rating function for the product or service	X7

As funders, we wanted great value for farmers from this app. To continue this, we think the app developers can put some checking questions when users are uploading what they are selling	X6
Product or service rating – include time turnover of the transaction	X3
Chat board – where highest and lowest rate clients or users are reported to encourage quality	X8
Testimonials functions on the app to encourage repeated transactions	C10
Having testimonials on the app and rate your experience	C6

Table 4.27 above shows participants' responses to the quality control structures that can be put in place to ensure key activities on mobile application are responsive to customer needs.

The study further probed for strategies to make customers confident in transacting for the products they purchase via the Food for Us mobile application. In the three brainstorming workshops with all the participants, the following question was asked by the researcher:

Q27. How can the customers be confident in the products or transactions happening at the Food for Us mobile application?

The study findings are presented in Table 4.28 below.

Table 4.28: Strategies to enhance customers' confidence on the transaction or product on Food for Us mobile application

Response	**Source**
Customer ratings also gives confidence to suppliers	F3
I feel confident to make a payment on the app	F5
If there was a vetting process at the point of registration then all buyers on the app would be confident about all sellers	F13
Registration and vetting process - this will make us confident	F6
I will feel more comfortable and confident to use the app to access the product or services if there are security features to prevent fraud or harm	F1
It is difficult to regulate on the app. Farmers and buyers should agree on costing	X2
In business confidence is very important, we recommend that the develop vet all app users so that they have a good track record	X7
Knowing that all users have been vetted will bring confidence	X11
The rating system would inspire confidence in highly rated sellers	X1
Important details such as name of the seller, location and price and price of what they are selling should be displayed publicly on the app to increase confidence	C3
Having seller testimonials where buyers are happy with a seller and can write a testimonial on their profile	C7
Transaction verification or rating can increase confidence	C2
Testimonials increase confidence and gives an idea of quality of product	C8

Table 4.28 above shows strategies perceived to enhance customers' confidence on the transaction or product on Food for Us mobile application. The assumption was that if customers feel confident to perform any transactions via Food for Us mobile application, this adds some value to the mobile application, and this can increase income generation towards the sustenance of the mobile application. The study went on to determine the cost structures for a fair costing of the products on the Food for Us mobile application.

- Cost Structures related to value addition

In the three workshops the following question was asked by the researcher.

Q28. What cost structures can be put in place such that there is fair costing on the products transacted on the Food for Us mobile application?

The study findings and insights are presented below.

Table 4.29: Cost structures for fair costing on Food for Us mobile application

Response	Source
Blacklist bad business - we can be confident when buyers and producers can be blacklisted when conduct bad transaction	F2
Willing buyer willing seller policy	F4
No pricing regulation is necessary. Otherwise it will lead to the waste we are trying to eradicate	C8
Best not to regulate the pricing	C2
Willing buyer willing seller	C5
I think the price should be free-floating. No specific regulations but should adhere to domain prices	C1

Table 4.29 above shows the perceived cost structures for fair costing on Food for Us mobile application. The idea was to find a way in which moderations can be done on all the products sold or transacted on Food for Us mobile application. Lastly the study determined key resources that could make the Food for Us mobile application cost effective.

- Key Resources related to value addition

In the two brainstorming workshops with the Experts and Consortium team the following question was asked by the researcher:

Q29. How can the key resources for the Food for Us mobile application be cost effective?

The study findings and insights are presented in Table 4.30.

Table 4.30: Key resources to make Food for Us mobile application cost effective

Response	Source
Why not hosting the app under institute like Rhodes, and the app become RU responsibility as part of CSR and community engagement	C5
The app ownership needs to be more defined. Once defined, buying the rights so that more affordable developers may be sought	X8
You see, this application we developed it, it belongs to us but if a group of farmers or sellers insist to buy and run it themselves, it will be more cost effective to them	X10
Intellectual properties – it is better to buy intellectual properties like rights than being hosted per subscriptions	C2
HRM – train the farmers to be able to maintain and update the app functions	C10
We can also think of using human resources available within the app developers to continue running the app without putting new costs on the developer	C20
Human resource - if the app becomes institutional for example part of Rhodes University then the resource could be pulled from the institution	C2

Table 4.30 presented above shows the participants' views and perceptions on the key resources important to consider when developing a cost-effective social enterprise business model. The idea was to inquire about strategies to make the Food for Us mobile application cost effective and attract more users to generate more funds for self-sustaining. This aspect of the business model development was thought to be out of the reach of the users. Hence, the users were omitted from this question.

4.4.16 Summary of the data presented

As can be seen from the above (sections 4.4.1-4.4.15), the study undertook extensive probing of a range of different aspects that drew in the views of the three clusters of stakeholders. The enquiry covered aspects related to understanding the existing situation, as well as possibilities for advancing the Food for Us mobile application development from a business modelling perspective, with an emphasis on specific features that were oriented towards social enterprise business modelling. In detailing these so carefully above in relation to each question, the researcher was able to make visible the many valuable inputs that were received from the three workshops and the business canvas modelling that was undertaken by the participants and the researcher via the research process.

The next section of this chapter (section 4.5) offers a more summative analysis of the presented findings, and in Chapter five these are further synthesised and discussed drawing on the literature used in the study.

4.5 Analysis of the presented findings

4.5.1 Key stakeholders in the context of Food for Us mobile application and beneficiation

The study applied the Salience Model to identify the key stakeholders and categorised the stakeholders according to their salience status (Mitchell, Agle & Wood, 1997). Mitchell et al.(1997) described the salience status of key stakeholders using three categorise namely, power, legitimacy and urgency (see section 2.2.1, and Figure 2.3 Stakeholder Typology). Secondly, the three propositions (see Table 2.1 Stakeholder Propositions) were used to quantify and categorise the salience of the key stakeholders in the context of the Food for Us mobile application (Mitchell et al., 1997). According to Mitchell et al. (1997), power entails the ability to exercise one's will while legitimacy refers to acceptability of one's actions as far as business ethics and registrations are concerned. Lastly, urgency means being sensitive to time and critical to requirements to maintain good business standing on the market (see Chapter 2). Durr (2019) noted that the stakeholders in the mobile application came from diverse communities including those previously involved in Amanzi for Food, the initial project that brainstormed the idea of the Food for Us mobile application.

As presented in section 4.3 above, and in Table 4.2, Participants F1, F6, X4, and C8 respectively identified the farmers as the key stakeholders in the Food for Us mobile application. The farmers as the primary users of the Food for Us mobile application were thought of possessing high legitimacy (as the food producers) and high urgency (needing to sell their surplus food produce). This finding is in line with Mitchell et al.'s (1997) proposition 1b "moderate salience stakeholder who possess two of the three stakeholder attributes-power, legitimacy, and urgency". Considering that the farmers only possess high legitimacy, high urgency but low power, they become dependent stakeholders. They have to depend on those who have the power to make the Food for Us mobile application operational for them to continue benefitting from the mobile application.

Participants F5, X1, and C5 identified the buyers as key stakeholders in the context of the Food for Us mobile application. The buyers were thought of possessing high power (can determine what and when to buy) and high urgency (market oriented hence, they need the best and fresh food produce from the farmers) but low legitimacy. This finding agrees with Mitchell, et al.'s (1997) proposition 1b since they possess only two of the three aspects namely, power and urgency but do not possess any legitimacy claim to the mobile application. This make them dangerous stakeholders in the Food for Us mobile application. This is because they have power to determine and control the market and use of the mobile application. If they decide against the use of the mobile application, there won't be any need for it because they are key to its functioning. These study findings show how important it is to consider the users' views (farmers and buyers) in the designing and development of a sustainable social business model; after all the mobile application was designed for their use. The users are key stakeholders if the Food for Us mobile application is to be successful.

Secondly, the study findings presented in Table 4.2 show that Participant F4 and C3 identified the Consortium, especially the App Developers ,as key stakeholders in the context of Food for Us mobile application. The App developers were thought of as having high power (since they designed and had the hosting rights of the Mobile App), high legitimacy (because they are the legal owners of the Mobile App) and high urgency (the continued use of the Mobile App keep them relevant and profiting from the mobile application). This means the App developers are definitive stakeholders in the Food for Us mobile application. As definitive stakeholders they can add or take away certain functions from the mobile application and they have a direct effect/influence on how it functions. They are described in Mitchell et al. (1997) under proposition 1c (see Figure 2.3).

Participant F3, X5, and C4, identified the Consortium as another group of key stakeholders in the context of Food for Us mobile application. Experts who were comprised of the Sustainable Education Partners; Business Modelling and Tech Transfer Experts; the Social Innovator, the funders and the Researchers in the Sustainable food systems and Local food economies fields were believed to possess the power and legitimacy but do not have the urgency. This group of stakeholders is also described in Mitchell et al.'s (1997) proposition 1b as moderate salient stakeholders and they are dominant. The fact that they possess the funds, knowledge and

expertise gives them power and legitimacy with regard to the mobile application (although legally limited). However, they do not have any urgency to see the mobile application functional.

Lastly, the study findings show that there were other several government departments the participants identified as key to the continued existence and successful operation of the Food for Us mobile application. Such government departments include the DRDAR (Participant F2); who were thought to possess only high urgency and low power and low legitimacy over the Food for Us mobile application (see Table 4.2). According to Mitchell et al.'s (1997) Proposition 1a, the DRDAR has low stakeholder salience and thus can be described as a demanding stakeholder. Another government department identified is the DWYPD (Participant C7) were noted to have high power, high legitimacy, and high urgency in the context of Food for Us mobile application. This makes the DWYPD another definitive stakeholder as described in Mitchell et al.'s (1997) proposition 1c. Another government department identified is the DTI (Participant C9) and they were believed to possess only power. This makes the DTI a dormant stakeholder in light of Mitchell et al.'s (1997) proposition 1a. Lastly, the Intermediaries (LED Offices) were also identified by Participant C5 as another key stakeholder in the Food for Us mobile application. However, the Intermediaries were believed to possess none of the three characteristics making them a non-stakeholder group but still very important to the continued functioning of the Food for Us mobile application.

Responding to questions related to beneficiation, as outlined in section 4.4.1 and Table 4.3 above, participant F6 pointed out that, it is the "*Schools feeding schemes – because the schools can now sauerkraut fresh vegetables directly from the farmers in the community."* Participant F8 mentioned the buyers because, "*the application has a geolocation system that helps buyers to locate the food suppliers without travelling in search… so as a buyer, yes, I am a key beneficiary. I am able to access the market right on my phone and that makes it convenient for my business."* Participant F12 further added "*Buyers in rural areas"* and in support Participant F1 also suggested the buyers as "… *the main beneficiaries because they are able to find what they want to buy easily as such they save time and money."*

The above presented findings give an idea of who are the key stakeholders, their roles in the setting up of the Food for us mobile application and the likely benefits. The insights drawn from the study's findings are presented in Table 4.31 below:

Table 4.31: Key beneficiaries of the Food for Us mobile application

Source	Key stakeholder/ beneficiary	Benefits
F6	*Schools feeding schemes*	*- fresh vegetables directly from the farmers in the community*
F8 F12 F1	*Buyers/ Buyers in rural areas*	*- geolocation system that helps buyers to locate the food suppliers without travelling in search* *- quick access to market* *- business convenience* *- save time and money*
F14 C2	*Farmers* *small-scale farmers*	*- access to ready market* *- vegetables are perishable* *- earns income from surplus food produce.*
X14 C19	*Farmers and buyers*	*- easy interaction* *- connects farmers and buyers in selling and buying surplus food*
F4	*App developers*	*were paid to develop the application*
X6	*Funders*	*- achieved the target and objective that is to reduce on farm waste thereby promoting sustainable production and consumption patterns*
C18	*Mobile App Developers*	*- financial: income generated from the designing, development and continued hosting of the Food for Us mobile application*
C12	*Everyone involved*	*- reduced food waste*
C8	*Carbon Calculated*	*carbon dioxide and on-farm food waste reduction*
C1	*Lead Associates*	*Financial benefit s- subcontracted and lead consultancy in hiring Experts to develop the Food for Us mobile application*
C2	*ELRC*	*Rhodes University was recognised, and two masters came out of the Food for Us projects*

Table 4.31 suggests that there are various key stakeholders and beneficiaries in the context of Food for Us mobile application. Secondly, as suggested by Participant C12 "*everyone benefited*" and in the process all the involved stakeholders had an important role to play. The

benefits accrued ranged from access to ready markets, reduction in food waste, carbon, sustainable production, and consumption behaviours and lastly, networking opportunities and financial benefits.

Via further questioning on beneficiation as reported in section 4.4.1 above, participants' responses show a diverse range of benefits accrued, as outlined in Table 4.32 below.

Table 4.32: Participants' responses to benefits accrued (summary)

Source	Beneficiaries	Benefits accrued
F7	*Farmers and buyers*	*Supports local food systems (selling and buying of vegetable products unavailable on your farm)*
F13	*Farmers*	*Reduced market search costs*
F19	*Buyers*	*Locate fresh vegetables*
F3	*Farmers*	*Timely sale of produce reducing marketing related losses*
C13	*App Developers*	*Paid developing and hosting services*
X4	*Funders*	*Targets were met "promoting sustainable production and consumption patterns"*
X1	*Funders*	*Helped the farmers and researchers to benefit from the social innovation of selling surplus food via the app*
X9	*Tech transfer expert*	*Intermediary benefits of connecting the users and the technology*
C9	*Carbon Calculated*	*Reduced food waste and carbon footprint*
C8	*Sustainability Institute*	*helping the vulnerable (rural farmers)*
C20	*ELRC*	*reduction of food waste and promotion of local food economies (house food security)*
C17	*Consortium*	*Engagement and strengthened sectorial relationships*
C1	*Lead consultancy*	*innovative out there and we profited from the initial 18-month funding of the main project*

As shown in Table 4.32, the benefits accrued from the designing and development of the trial version of the Food for Us mobile application ranged from financial, capacity building, networking opportunities to environmental benefits. This shows how important key stakeholder engagement is in the designing and developing of a sustainable social business model for the Food for Us mobile application.

4.5.2 Key Social Enterprise Elements to consider for the Food for Us mobile application business model development

The study went on to determine the key social enterprise elements to consider in the designing and development of a sustainable social business model for the Food for Us mobile application. For social enterprise, a prominently non-profit entity applies entrepreneurship strategy to sustain operations while making profit for some stakeholders (Leonidou, 2018; Muñoz & Kimmitt, 2019; Komatsu Cipriani et al., 2020). Section 4.4 above indicates further detail on the social enterprise elements, with these summarised in Table 4.33 below.

Table 4.33: Social enterprise elements related to stakeholders' interests

Source	Role	Funding possibilities	Evidence
F5	Buyer	*No*	*I don't think I can fund the application… unless you tell me that funding the application will increase my profits then maybe I can consider it*
F13	Farmers	No	*… we are very poor, and we only produce a few for sale… most produce is for family consumption*
F7			*…there is a donor paying for us…the government must pay for us as they do with other mobile applications like Mom Connect*
F1		No	*… it will be very difficult for me to afford funding something like this. Farming is my only source of income, and it is very tight*
F2		Yes	*As I profit from the system it can be possible*
C14	Mobile App developers	No	*We develop and host mobile applications for profit…*
C18		No	*…we can just think of ways to help the low cost of running the application.*
X19	Funders	Yes	*…through the SLE via Rhodes University*
X6			*We funded the project from the beginning… we cannot …fund forever. But we really wish the operations of the app to continue*
C11	Pinpoint	No	*I doubt if we can contribute anything financially … we can just help with ideas on how the operations of the application can continue*
C1	*Lead Associates*	*No*	*Our target is to provide expertise and knowledge and we also must profit from that. So, we are not the rightful funders*
C15			*Been at forefront facilitating operation of the app. We really wish to continue this… see within our company on how to support this app with further partners*

C5	ELRC	*Yes*	*…we have been funding through human resource and research work (two Med students researched in the project*
X20	Researchers in SFS and local food economies fields	*No*	*We offer research work pertaining supply chain value creation, food systems. We don't have budget for that kind of work*
C10	*Sustainability Institute*	*No*	*We are mostly a partnering organization with focus on research work in food systems, social innovation, and transformative learning*

It is interesting to note that, as highlighted by Participant X6 the funders through the Sustainable Lifestyles and Education (SLE) Programme under the United Nations' One Planet 10 Year Framework of Programmes for Sustainable Consumption and Production (10YFP) funded the trial version of the Food for Us mobile application for an eighteen-month period, and now that the funding has ended, they emphasise that it is time to find alternatives to keep continued operations of the mobile application. Hence, the rationale of this study as elaborated in Chapter 1.

Participant X6 further pointed out that the funders have done their part and "…*cannot fund forever"* but interestingly as highlighted in Table 4.33 above, most of the key stakeholders who are also the beneficiaries in the context of Food for Us mobile application are not willing or able to fund the continued operations of the mobile application. Hence, there is need to proffer alternatives or strategies to generate income to self-sustain the operations of the mobile application.

Interestingly, ways in which the key stakeholders are willing to contribute are in form of human resources capacity and consultancy-based inputs; only the farmers are willing to financially support when they begin to profit from continued use of the mobile application, and so are the buyers who want to be convinced first that funding the operations of the mobile application will profit them. The willingness to go a step ahead is evident but the farmers and buyers need a reason or motivation to fund the operations of the Food for Us mobile application. It is, therefore, clear that if the Food for Us mobile application is to remain operational it must be self-sustaining. Self-sustenance is one social enterprise element

starting to be evident from this study findings and insights and it must be considered in the designing of the sustainable social business model for Food for Us mobile application. Table 4.34 outlines the contributions that different stakeholders are willing and able to make to the Food for Us mobile application (see also further elaboration in section 4.4.2 above).

Table 4.34: Participants' responses on the contributions they are willing to offer

Source	Contribution possibilities	Remittance format	Evidence
F7, F14	*Payments*	*Airtime*	*Maybe R20/month*
F2			*R12/month*
F13		*Data*	*R15/month*
F17		*EFT*	*R50/month*
F6		*Commission based*	*… charge to my account after every successful sale*
F18			*Deduct from what I would have sold on the app than to pay in advance*
F20		*Farmers Association*	*Contribute to this application as farmers association… make a monthly financial contribution from the membership fees that the farmers have already paid*
F2, X5, C4	*Fundraising*	*EFT/ funding stream - (Rhodes University)*	*Donor funding*
F7		*Rhodes University*	*Apply for funds from government like DRDAR*
F1		*EFT*	*Field shows*
F5		*I don't know*	*Market days - where we charge sellers for a stall*
X19		*Cheque payment*	*crowdfunding on the website*
C20, C15		*ELRC - Rhodes University finance system*	*Scouting for all calls for proposal that come up from all funding bodies, international and national.*
X2	*Corporate social responsibility (CSR)*	*Research services*	*As Sustainable Education Partners, we can offer services (research)…*
C13		*Discounts*	*Reducing the cost of the operation*
C2			*A CSR for supporting the app (we need to lobby with the management to consider it)*

Table 4.34 above shows several ways in which the key stakeholders can contribute making the Food for Us mobile application functional and self-sustaining. As shown above a monthly payment could be an option and remitted in various forms from airtime, data or EFT and commission-based payments. Lastly, the farmers felt they could also contribute as a Farmers Association using their membership funds. This shows the urgency in the users and the potential in the Food for Us mobile application.

However, one of the biggest setbacks in the other two key stakeholder engagement workshops with the Experts (X) and Consortium (C) was that some of the participants were representatives of organisations and didn't have the capacity to pass a decision. This is evidenced by Participant X10's who posited that, "*… this is difficult to say. Maybe respective organizations may decide…"* and Participant C7 said, "*I think this is a difficult question to tackle in this workshop because we are all representatives of different organisations we can't suggest or decide now but we can take it up with relevant departments*". The other setback is that some key stakeholders like Lead Associates profited from the engagement process "*…because we also host for profit, but a way can be worked out as a discount or so*" (Participant C2); as such it is difficult for them to contribute substantially towards the continued and effective operations of the Food for Us mobile application. Study findings and insights show how important financial sustainability is for the effective and continued operations of the Food for Us mobile application but because of the fluidity in the key stakeholders' profiles and roles, it is difficult to rely on contributions to sustain the mobile application. Hence, suitable financial streams must be developed in order to self-sustain the Food for Us mobile application.

Another method of funding highlighted in the expert workshop was to approach the South African government to "*…adopt the app and it becomes a government app just like the pregnancy app"* (Participant X14). As shown in Table 4.34, fundraising in the form of crowdfunding, scouting for call of funding and grants proposals was mentioned often. This shows a level of donor-funding dependence, and this is the reason why this research has been initiated i.e. to find alternatives to donor dependency. Financial self-sustenance or sustainability should be the priority and not donor funding if a sustainable social business model for the Food for Us mobile application is to be designed and developed.

A more interesting fundraising method raised in the Users' workshop that may be worth considering is the use of field shows (Participant F1) and market days to generate income for the Food for Us mobile application. The field shows and market days concept is based on the principle that a marketplace is created where the sellers pay a fee to own/run a stall/stand showcasing their produce and products (Participant F5). This fundraising method is practical but it would have to be tested, especially in complex and difficult circumstances (e.g. as in the COVID-19 pandemic period). In essence, this is a common and old concept used in most communities to encourage and create open markets for farm produce. The field show concept also opens sharing of ideas, networking synergies as the users conduct their business(es). However, the field show and market days funding methods lack accountability and sometimes the driving-visionary personnel, especially under open-community ownership, unless there is a form of beneficiation involved.

The above suggestions and commitments by the key stakeholders in the three workshops, gives a sense of how important financial sustenance as a social enterprise element is in the designing and development of a sustainable social business model in the context of the Food for Us mobile application. In essence, the study findings and insights highlight the need to develop a financial self-sustainable social business model if the Food for Us mobile application is to be effective and operational. There is need to develop financial or income streams that can self-sustain the operations of the mobile application. As highlighted above financial contributions in the form of monthly payments, fundraising activities can be considered but are not enough on their own to sustain continued operations of the Food for Us mobile application.

The study went on to determine how social exclusion as a social enterprise element is critical in the designing and development of a sustainable social business model for the Food for Us mobile application. The assumption here was that if the business model fails to deal with social exclusion element in the designing and development of the Food for Us mobile application, some important groups of the community will be excluded reducing the scope and sphere of the mobile application. As discussed in section 4.4.3 above, in response to questions about inclusion of other stakeholders, participants indicated that the project could benefit more groups, as summarised in Table 4.35.

Table 4.35: Analysis of the findings related to inclusion of other stakeholders

Source	Response	Evidence
F13	Yes -*the bakkie sellers*	*… who sell vegetables from their bakkies I don't think they can afford to contribute but I think they can be buyers on the app too*
F12	*Ordinary people*	*There are some people who come to tell us about the availability of goods to buy but they don't use the app*
F11 C7	*Yes, farmers*	*The government must subscribe for the black farmers (subsistence farmers)* *they are very poor or financially challenged to self-sustain or promote the app.*
F4 C10	*Yes, buyers*	*- vegetable business is not very profitable… buyers should be exempted because we bring business to the community* *most don't have the urgency hence can't commit to high funding of the app, they should contribute as per registration and monthly subscription*
X13	*Commercial farmers*	*…because they are regarded as big enterprises … so, the app should be open to them*
X6 C6	*Some small scale and backyard farmers*	*…are already struggling financially…* *…may struggle to contribute to the app. We are dealing with previously disadvantaged rural farmers already in low-income bracket*
C12	*Informal traders*	*…who recycle the e-waste…*

The study findings and insights presented in Table 4.35 above show that there are quite a number of key beneficiaries, identified in the three workshops respectively, that have been excluded from using the Food for Us mobile application for various reasons beyond financial capacity. The excluded key stakeholders are the 'bakkie sellers', these are those informal traders "*who sell vegetables from their bakkies*" (Participant F13); the ordinary people; commercial farmers; small scale and backyard farmers; informal traders and other Users (farmers and buyers). These key stakeholders are said to have been financially excluded but not all of them. An interesting exclusion has been reported on two fronts, which involved exclusion from using the mobile application due to lack of knowledge and low subscription capacity. But the trial version of the Food for Us mobile application was sponsored, and no registration or subscription fees were charged. This may imply that the participants in the three workshops respectively were envisioning potential exclusions based on financial capacity. Another form of social exclusion reported was in form of a lack of diversity of functions on the mobile application. In essence, Participant C12 identified the informal

traders as an excluded group simply because the mobile application was restricted to farming produce only, leaving out other income streams like e-waste. Hence, making the Food for Us mobile application more diverse could reduce social exclusion from the mobile application. The above insights and findings show how important social inclusion is in the designing and development of a sustainable social business model for the Food for Us mobile application. An important lesson to take from this analysis is the issue of financial and non-financial (user functionalities) exclusions. The sustainable social business model for Food for Us should be affordable and provide a wide range of functions beyond selling of surplus food. So far, the key social enterprise elements learnt for the designing and development of a sustainable social business model for Food for Us mobile application are financial self-sustainability and social inclusivity.

As reported in section 4.4.4 above, the researcher also probed additional income generative mechanisms to make the Food for Us mobile application financially self-sustaining and socially inclusive. Table 4.36 summarises the insights gained on this aspect.

Table 4.36: Other means of income generation for the Food for Us mobile application

Source	**Method**	**Tool/element**	**Evidence (Other income generative mechanisms for Food for Us mobile application**
F7 X2 C5	*Subscriptions, registration and advertisement/commission fees*	*Diversify*	*… involve other business activities beyond what we currently do … you can include adverts, etc.* *Add some revenue features to the business model.* *… transforming the app into a social learning tool that can have some subscriptions*
F18 X5 X9 X2			*Users subscribe for produce to be uploaded and advertised on the app platform* *…multi-level subscriptions for use or advertising space may allow for some revenue* *…properly used to advertise various things and we charge on the adverts* *… monthly subscription; registration*

			fees; advertising fees
F11			*Charging commission to the farmers for any successful sale*
F1 X7		*Accessibility*	*Increase access and subscriptions via web-application* *… web hosting and increase customers or followers to generate loyalty benefits from web users.*
F20		*Inclusivity*	*Make companies and retailers pay to become buyers of fresh produce on the app*
C6	*Corporate Social Responsibility (CSR)*	*Fundraising*	*App developers should charge sustenance fees and not prosper or profit from the app*
C7 C3 C1	*Donations & Fundraising*		*Continued research funding opportunities* *Approach retail giants to own and fund it such as Spar* *Approach government to take this over such as DTI so that it is rolled out as a national government app*

As shown in Table 4.36 above there are three broader categories of income generation that can be incorporated into the Food for Us mobile application. Subscriptions, registration, and advertisement/commission fees were identified by the majority of the participants in the three workshops as the first method that can be adopted to make the Food for Us mobile application self-sustaining. Major highlights linked to diversifying the functionalities of the Food for Us mobile application beyond its current purposes (Participant F7). Two elements that could help in diversifying are *"…adding some revenue features to the business model*" (Participant X2) and "… *transforming the app into a social learning tool that can have some subscriptions*" (Participant C5). In relation to revenue, features and subscriptions per se "*multi-level subscriptions for use or advertising"* (Participant X5) were widely suggested as possible income generative mechanisms for the Food for Us mobile application if it were to become financially self-sustainable.

Pertaining to the same issue of subscriptions, registration and advertisement/commission fees accessibility was also identified as another way in which the Food for Us mobile application can generate income and become self-sustaining. The major highlight was on

increasing access by the public to use the Food for Us mobile application. Accessibility can be increased by "*web hosting and increase customers or followers to generate loyalty benefits from web users…"* (Participant F1) and by increasing "*access and subscriptions via web-application"* (Participant X7). The understanding is if the Food for Us mobile application is web-hosted, many users can easily locate it and subscribe. Funds will be generated through web hosting loyalties and users' subscriptions towards the Food for Us mobile application. Lastly, also mentioned on the same income generative means, is inclusiveness by extending access and use of the mobile app by "*companies and retailers and making them pay to become buyers of fresh produce on the app"* (Participant F20).

Another income generative mechanism identified was to tap into Corporate Social Responsibility (CSR). According to Participant C6, the Food for Us mobile application can save funds if "*… the likes of the App developers, …charge sustenance fees and not prosper or profit from the app."* This insight is linked to the CSR concept and it is based on the responsibility of every corporate to plough back. However, this can't be forced on an organisation and may also be a short-term option; hence, it remains a weak strategy unless the App developers secure a long term partnership with a CSR income stream, but even then it would be wise to diversify income streams to reduce vulnerability. Signals on the need to find ways to lessen expenses on the mobile App hosting were given, which could be an avenue for CSR support.

Lastly, donations and fundraising were identified as another income generative mechanism. However, as discussed and argued earlier in section 4.4.4, donations and fundraising cannot be solely substantive income generative mechanisms. If relied on, this can encourage donor funding syndrome which produced the problem that this research is seeking to resolve. Hence, there is need to identify effective income generation mechanisms that can make the Food for Us mobile application financially sustainable. What emerges strongly here is the fact that there is need to diversify, and increase accessibility and inclusivity if a financial self-sustaining business model for the Food for Us mobile application is to be developed. The issue of multi-level subscriptions for users and advertising fees should be considered as strong income streams to make the Food for Us mobile application financially self-sustainable.

4.5.3 Important elements of a sustainable social business model using the Business Model Canvas

The study went on to determine the key elements to consider when designing and developing a sustainable social business model for the Food for Us mobile application using the nine elements of the Business Model Canvas. The following analysis is presented according to the nine elements of the business model canvas (see Figure 2.4, and introduction of the elements in Chapter 2).

- **Cost structures**

As indicated in section 4.4.5 above, the study sought to determine the cost structures to be considered in sustaining the operations of Food for Us mobile application if a sustainable social business model was to be designed and developed. Firstly, key costs in sustaining the operations of the Food for Us mobile application are presented in Table 4.37 below:

Table 4.37: The analysis summary on the cost structures to sustain the operations of Food for Us mobile application

Source	Cost structures	Evidence (Other income generative mechanisms for Food for Us mobile application.
F7 F16 X7 C1	*Internet-data costs*	*…need to pay for internet and data.* *…we need data to access the app in order for it to be active.* *…data on the part of the farmers and buyers* *… farmers to have data in order to use the app*
F5 X2 X7 C19 C6	*App hosting*	*Paying the app developers* *…retain the web developers for the app* *Hosting of the app* *…developing updates for the applications and developing new functionalities that may be needed* *app developers labour they need to keep the app updated, fix any problems experienced and maintain it*
X9	*HRM- Moderator*	*… if there is going to be screening of what gets published or advertised on the app*

As shown in Table 4.37 above, there are three identified cost structures in sustaining the operations of Food for Us mobile application namely, internet data costs, mobile app hosting and Human Resource Management (HRM) related costs. It is understood that for the Food for

Us mobile application to be active again the users (farmers and buyers) should now incur data costs. This is because during the development and implementation of the Food for Us mobile trial version, the forty users were provided with internet data from the funder to access and use the mobile application. Since the funding has ended, the users must source own internet data to access and use the Food for Us mobile application.

Secondly, the Food for Us mobile application was developed and hosted by a third party hence, hosting fees must be paid if the mobile application is to continue. Lastly, there are going to be some human resources management related costs especially if more functionalities are to be added and the hiring of a Moderator if content quality assurances are to be achieved. What is learnt here is that if the sustainable social business model is to be designed and developed, the above three cost structures must be considered. In essence, the cost structures are important in determining what income generation streams and for what purposes. Cost structures becomes an important key business element to consider in the designing and development of a sustainable social business model for Food for Us mobile application.

After determining the key cost structures presented in Table 4.37 and determining the additional functions (perceived value propositions, see Table 4.10) it is important to determine the cost management structures to support and sustain the identified cost structures in Table 4.37 and those additional functions and operations perceived in Table 4.10 in the context of Food for Us mobile application. As indicated above in section 4.4.8, Experts and Consortium members were asked to respond to questions on cost management structures, with the responses summarised in Table 4.38 below.

Table 4.38: Summary analysis on the cost management structures to support and maintain the proposed additional operations and functions on Food for Us mobile application

Source	Cost management structures	Evidence
X9	*Affordability*	*Explore options for more affordable app developers to maintain the app pages*
C2		*Train some farmers to be able to manage and maintain the app pages so that it can a community owned and run app*
C1		*Instead of paying monthly subscriptions to be hosted by the app developers, why not buying the app hosting rights*

It is interesting to note that despite the cost structures identified in Table 4.37 namely, *internet-data costs, HRM-Moderator and App hosting* it is the app hosting that is identified and responded to as the major cost structure. As shown above in Table 4.38, affordability of App hosting was identified as the main cost structure. Options mentioned ranged from finding or exploring alternative cheap options for App hosting (Participant X9) to buying the App hosting rights from the App developers (Participant C1) and, lastly, to training internal personnel in order to transfer the maintenance and management, including App hosting, from independent companies to more of community ownership, thereby doing away with the expense of HRM and App hosting (Participant C2). The above insights are based on the understanding that buying App hosting rights from a third party would be expensive initially but cheaper in the long run and this could even be made even cheaper by training local farmers to manage and maintain the operations and functions on the Food for Us mobile application. This sounds a good long-term investment which will help in the reduction of cost structures on the mobile application. What is coming out clearly here is the need to reduce cost structures on the Food for Us mobile application to make the mobile application financially sustainable. Hence, cost structure management is critical to consider when designing a sustainable social business model for the Food for Us mobile application.

Additionally, as indicated in section 4.4.5, the study also sought insight into the cost structures for a fair costing of the products on Food for Us mobile application as shown in Table 4.39 below.

Table 4.39: Analysis summary on the cost structures for fair costing of products on Food for Us mobile application

Source	Cost structures for Fair costing of products	Evidence
F2	*Blacklist bad business*	*we can be confident when buyers and producers can be blacklisted when conduct bad transaction*
F4	*Willing buyer, willing seller policy*	*Willing buyer willing seller policy*
C8		*No pricing regulation is necessary. Otherwise, it will lead to the waste we are trying to eradicate*
C2		*Best not to regulate the pricing*
C5		*Willing buyer willing seller*
C1		*I think the price should be free-floating. No specific regulations but should adhere to domain prices*

Table 4.39 above, shows two major cost structures for fair costing on the Food for Us mobile application, namely backlisting of bad business and to apply willing buy, willing sell policy. This came as an understanding that the mobile application cannot decide on pricing but can at least facilitate the meeting up of the buyer and seller to conclude their business deal. The study went on to determine the value propositions of Food for Us mobile application to its users.

- **<u>Value propositions</u>**

The study went on to determine the current value propositions the participants are realising from the Food for Us mobile application. Understanding the current value propositions associated with the Food for Us mobile application was important when envisioning ways to improve and make it sustainable. This also gave an idea of how to enhance or improve the current value propositions and make the mobile application sustainable. To achieve the above, as reflected in section 4.4.6, questions were asked on value propositions for stakeholders, with insights summarised in Table 4.40:

Table 4.40: Summary analysis of the current value propositions of the Food for Us mobile application

Source	Perceived value proposition		Evidence
F12	Market	*Ease of access*	*As a buyer I think the simplification of getting what I need is the most value I get from the app*
F10		*Cheap access*	*I can sell most of my produce via the app at low or zero cost*
F12		*Quick access*	*the application gives us a quick access to online market*
F8		awareness	*I get to know of existence of food to sell that I looked for but never found physically*
F7	*Networking opportunities*		*the application connects us with the buyers creating a better relationship with customers*
X8			*…gives scholarly ground for students or researchers to work.*
X3	*Innovativeness*		*It brings value to my field of interest in that it showcases innovation*
X17	*Reduce food waste*		*Fresh produce*
X15			*it gives a new perspective on food waste management in the local economy…*
X6			*achieve or promote responsible consumption and reproduction patterns through community projects*
X18			*it moves towards our goal of reducing food waste and ensuring food security*
C6			*facilitates local food economy*
C5			*sustainable systems board of work*
C12			*…impact in the social development context*
C20	*Research opportunities*		*Provides the ground for research (transformative learning)*

As shown in Table 4.40 above, the Food for Us mobile application has a wide range of value propositions depending on stakeholder salience and role. As discussed earlier the key stakeholders benefited in various ways and this is what is being detected in the study findings and insights on the perceived value propositions. The value propositions mentioned above include Market opportunities in which the Food for Us mobile application has offered easy, cheap, and quick access to markets and added on to the general awareness of local food markets/economies. In essence, the Food for Us mobile application provides convenience and saves time and financial resources on market research and search related activities.

The second perceived value proposition highlighted by most of the participants in all three workshops is reduced food waste. The main reason for the development of the mobile application was to reduce food waste and promote sustainable or responsible food consumption and reproduction patterns (Participant X6) and this is exactly what the study findings are showing. Another value proposition mentioned is the promotion of local food economies (Participant C6). Notably, these value propositions have environmental and socio-economic development gain in them, and they are realised by external key stakeholders like the Consortium and the Experts. This can motivate the key stakeholders to contribute towards the sustenance of the Food for Us mobile application.

Lastly, the study findings' analysis presented in Table 4.40 reflects on other value propositions such as networking, research, and innovative opportunities. Again, these value propositions are perceived by the Consortium and Experts and not the Users themselves. This speaks volumes to the earlier discussion on wide stakeholder expectations. It shows the impact the Food for Us mobile application has on the various key stakeholders involved and how value proposition is an important business model element to consider in the designing and development of a sustainable social business model for the Food for Us mobile application.

As shown in section 4.4.7 above, the study also sought insight into whether participants are satisfied with the current value realised or expect more from the Food for Us mobile application, with insights presented in Table 4.41 below:

Table 4.41: Analysis summary on the perceived value proposition

Source	**Perceived value proposition**		**Evidence**
F6	*User friendly*		*The app should bear in mind I am just a rural farmer therefore the use of the app should be simple for me to use*
F15		*Prices*	*consider us the buyers to add some buttons that show price of food stuff*

F17	*Additional functions*	*Feedback platforms*	*…there is a need for a feedback platform on the app for us to rate and report back on the services and the produce that we get*
F1			*Feedback push button to the app developers - so that we can express our challenges in using the app*
C13			*…add some functionalities and operations such as chat features to the application…*
C20			*include transaction rating to encourage other users*
F10		*payment portal*	*for legitimacy reasons there is a need to include a payment system on the app*
X7			*add payment portal.*
X11		*Advertising & donation section*	*Add advertising space on the landing and login pages, and charge local businesses for advertising there*
X7			*Include advertising subscription and add donation section*
C6			*A donation functionality for donating any food waste before it goes to land fills*
X16		*Revenue stream*	*…add a revenue stream. It is not sustainable because it does not have financial inflow*
X2			*Perhaps adding a tiered subscription for users such as standard and premium*
C1			*Add purchase or sale commission… add per transaction loyalty points to encourage more use*
C9		*Environmental awareness*	*…as Carbon Calculated… raise climate change awareness through food management*

Table 4.41 presented above shows two major perceived values the participants wish for namely, the mobile application to remain user friendly and be diversifiable with various additional functionalities. The additional functionalities include adding price tags/functions on the mobile application that allows the users especially the buyers to view the prices of the food produce on the market. Secondly, including feedback functions. The feedback functions range from providing feedback on the quality of service and product (Participant F17); reporting challenges faced in using the mobile application (Participant F1); chat feature direct to the app developers (Participant C13); and transaction rating (Participant C20). Thirdly, inclusion of a payment portal (Participant F10 & X7) as well as advertising and donation sections (Participant X11; X7 & C6). In essence, as highlighted by Participant X11, there is need to *"add advertising space on the landing and login pages and charge local businesses for advertising there"*. It is interesting to note that participants viewed the need for advertisement space as a potential revenue stream. In essence, they lobbied for the inclusion of advertisement space beyond diversification, for the purposes of income generation towards the financial sustenance of the Food for Us mobile application.

It is also interesting to note that the inclusion of a donation section was mentioned but this time by the Users. As suggested by Participant C6 that there should be *"a donation functionality for donating any food waste before it goes to landfills"*. This suggests that there is environmental thinking around the issue of food waste happening. So, the Food for Us mobile application is perceived to provide environment protection. This thinking was further suggested by Participant C9, who pointed out that, "*…as Carbon Calculated… raise climate change awareness through food management."* Meaning the Food for Us mobile application is being developed as an instrument or tool to raise environmental awareness and protect the environment from unjust food consumption and production patterns through minimising food waste, which accords with the initial funding purpose of the application by the UNEP, which was to support sustainable production and consumption, as indicated in Chapter 1.

Lastly, Participants X16; X2 & C1 respectively suggested adding revenue stream functions/activities onto the Food for Us mobile application to make it financially sustainable. Participant X2 suggested "*…adding a tiered subscription for users such as standard and premium"* while Participant C6 suggested "*adding a purchase or sale commission…"* or *"add*

per transaction loyalty points to encourage more use". All these suggested activities and functions tend to increase revenue for the Food for Us mobile application making the mobile application financially sustainable in the near future. This shows the importance value proposition has when considering the designing and development of a sustainable social business model. However, not all the add-ons mentioned above will contribute to the financial sustainability of the mobile application but may (pivot) improve the functionality and user friendliness of the Food for Us mobile application. These insights and findings are worth feeding back to the App developers for further consideration when designing sustainable social business models.

As indicated in section 4.4.10, the additional functionalities that are perceived to add more value to the Food for Us mobile application were also investigated, a summary of which is presented in Table 4.42 below:

Table 4.42: Summary of the other functionalities perceived to add value to the Food for Us mobile application

Source	Other functionalities	Evidence
F6	*User verification and vetting*	*The app currency does not vet people. So, I can't know on the app if I am dealing with a legitimate or a good supplier*
C3		*Verification features on the app will add value to the sellers and buyers as they see it more secure to do online than physical*
X10		*Vetting system to uphold high confidence in the customers*
X5		*Vetting users upon registration would add legitimacy and sense of security*
F9	*Feedback/testimonials/reviews*	*Feedback rating on the product or service provided*
X2		*Service or product rating*
C9	*Advertisement functions*	*Video advertisement for quality marketing*

Table 4.42 above, shows three critical additional functions perceived to add value to the Food for Us mobile application namely, security protocols (vetting and verifying users upon registration) (Participants F6; X5; C3; X10); feedback on service and product quality (Participants F9; X2) and, lastly, advertisement functions like video advertisement space (Participant C9). The most important issues to carry in mind when designing and developing

a sustainable social business model for the Food for Us mobile application is the need to ensure users' information security and confidentiality through user vetting and verification; allow anonymous feedback on service and product quality; and allow advertisement spaces on the mobile application. These three aspects, if well integrated, are perceived to increase users' security, confidence, and encourage more participation on the Food for Us mobile application.

As the deliberations were going on it was also important to consider ethical issues around the proposed added functionalities to make the Food for Us mobile application ethically acceptable. As reported in section 4.4.9, the study went on to inquire into the necessary ethical issues to consider in the designing, development and integration of the perceived functions and operations (perceived value propositions) maintaining financial sustainability and social inclusion of the Food for Us mobile application as presented in Table 4.43.

Table 4.43: Analysis of the ethical considerations in designing and incorporating the proposed additional operations and functions on Food for Us mobile application

Source	Ethical considerations		Evidence
F3	*Identity protection*		*I want my identities to be secured from misuse… App guys (developers) should know who is using the app and their intentions.*
F5			*Privacy of my personal information like my ID number and where I stay on geolocation*
C18			*… personal information is well secured and not misused by the users of the app.*
C4			*Ensure information and participants' profiles security on the app*
F4	*Accessibility*	*Language*	*I would like to see isiXhosa in the app to help with access*
X13			*…include multiple languages like isiXhosa and isiZulu.*
F6			*design it in many languages to make all the people able to use it*
C5			*…the new operations should reflect the wishes of the users for example most of them speak isiXhosa in the Eastern Cape.*
C6			*Providing access in multiple languages especially isiXhosa for now to allow access for all*

F9			*… include audio or voice narrations on the application*
X13		*Audio/voice*	*Including voice notes on the app would make it more appealing and accessible…*
F10		*better interface*	*…easy to be used by elderly people*
F12		*Free data*	*… there are Apps that do not use the person's internet data like FNB and Capitec… find a way for the mobile App to be free (not to use any data) to allow ease access*
X5			*…have the app whitelisted by the service providers.*
X7	*Inclusion*	*Registration*	*Remove the SA ID number on the registration portal or add other alternatives to identity like passport numbers*

Table 4.43 suggests that accessibility is the major ethical consideration to consider when designing and integrating the proposed new operations and functions (perceived value propositions) onto the Food for Us mobile application. The most prominent was the issue of language, as mentioned by Participant X13, there is need to "*…include multiple languages like isiXhosa and isiZulu…" "…to allow access for all"* (Participant C6). There were also calls for free data access or "*…having the app whitelisted by the service providers"* (Participant X5) as an alternative to dealing with internet data costs. Another echoed accessibility issue was on the inclusion of audio or voice notes on the Food for Us mobile application (Participants F9 & X 13) to make the mobile application accessible to people with disabilities like vision problems. Second to the accessibility issue was identity protection/anonymity. It looks like most of the participants didn't see any problem in giving out their identity particulars but would want full protection from other users beyond the App developers to maintain their anonymity. They are also afraid of fraudster or online abusers who might take advantage by using their identity particulars for other unscrupulous businesses. Lastly, the issue of social inclusion by means of registration. Participant X7 felt the current registration format omits potential foreign nationals who might be interested in using the mobile App but because they don't hold South African Identity they may be excluded hence, the need to incorporate other registration particulars like passport numbers.

- **<u>Key Activities</u>**

The issue of financial sustainability was noted to be of key concern if the Food for Us mobile application can be sustainable. The need for financial streams was also highlighted as a key business element to be considered, as well as the need for additional functions and operations. It was deemed important to also determine the key activities that can be added together with the perceived value proposition functions, or removed from the Food for Us mobile application to make it more financial sustainable. The understanding here is that current and perceived value propositions go hand in hand with the key activities and it is these key activities that sustain or maintain the Food for Us mobile application activity. Hence, there is need to investigate them (see section 4.4.10) as well and find ways to improve or add more key activities (summarised in Table 4.44 below) on the mobile App to make it accessible, user-friendly, and financially sustainable.

Table 4.44: Analysis summary on the key activities to make Food for Us mobile application more sustainable

Source	Key activities			Evidence
F1	*Additional functions*	*Revenue streams*	*Commission payment/Point discount system*	*after every successful sale, the app should deduct some commission at an agreed rate. Let's say 5 or 10% towards the operation of the app*
F4				*to encourage use of the app for many transactions or point system to calculate monthly transactions*
X10			*Subscriptions & Advertisements*	*Adding subscriptions for users, adding advertising space for local business*
X2				*Add subscriptions to raise funds towards the sustenance of the app*
F17		*Noticeboard*		*As a buyer, I also need to post a message that I am looking for so and so to buy. It should not only be farmers alerting us of what they have.*
F11		*Web application*		*include the application online for more users and income generation*
F9		*App banking services/ Online payment portal*		*…we should be able to pay on the app and get the receipt of payment for legitimacy.*
X2				*Add payment portal,*
X12				*Add online payment portal.*

C5			*Adding a payment platform online on the app*
X9		*Diversify*	*Allow other types of commodities to be traded on the app, e.g. e-waste*
X16		*Registration*	*Make the registration easy and accommodative to all*
C8		*Feedback portal*	*Include a feedback portal to improve or increase subscribers*
X13		*Local food systems surveys*	*…surveying food management in SA*
F2	*Remove functions*	*Registration*	*remove the registration as a buyer and a farmer because you can be both*
F8			*what if I don't have a registration number but wish to buy fresh vegetables for the house*
C4		*Confidentiality*	*…removing activities that may encourage fraud such as indicating personal details or reflecting the geolocation of the users*

The analysis summary presented in Table 4.44 shows eight key activities the participants wished were included or maintained on the Food for Us mobile application to make it more sustainable. These key activities are Revenue streams (Commission payment/Point discount system; Subscriptions & Advertisements); Noticeboard; Web application; App banking services/Online payment portal; Diversify; Registration; Feedback portal and Local food systems surveys. The above highlighted key activities are not far from the perceived value propositions highlighted in Table 4.40. As argued earlier the perceived value propositions go hand in hand with the perceived key activities. In essence, it is these key activities that make it possible to achieve the perceived value propositions. Hence, it was important to determine the perceived key activities if a sustainable social business model was to be achieved.

There was more input on revenue streams with the intention to generate income towards the operation costs of the Food for Us mobile application. Suggestions ranged from a ***Commission payment*** *of between 5–10%* (Participant F1) to a ***Point discount system***… to *encourage frequent use of the app or point system to be calculate per monthly transactions* (Participant F4). Other suggestions on revenue streams were on ***Subscriptions***, "*adding subscriptions to*

raise funds towards the sustenance of the app" (Participant X2) and ***Advertisements***, *"adding advertising space for local business"* (Participant X10).

Another additional key activity highlighted was ***App banking services/Online payment portal*** (Participants F9, X2, X12 and C5). The call was on adding an online payment portal on Food for Us mobile application. Participant F9 believed that this key activity would increase legitimacy and the users will be comfortable to transact knowing that every member is vetted and if anything goes wrong there is a point of reference. However, as good as it may sound, this has its own shortcomings; it provides false security since the Food for Us mobile application is just connecting users to do business but does not take any responsibility regarding quality or other shortfalls arising in the dealings.

The study finding analysis presented in Table 4.42 shows only two critical activities the participants deemed unnecessary. These activities were to do with registration and information confidentiality. Participant F2 suggested the removal of registration "*as a buyer or farmer because you can be both"* while Participant F8 suggested removal of the registration number when registering, arguing "*what if I don't have a registration number but wish to buy fresh vegetables for the house"*. It seems there is a consensus here that some parts of the registration process excludes potential users hence reducing the scope and sphere of influence of the Food for Us mobile application. This reduces potential revenue streams to Food for Us mobile application and limits its financial self-sustenance capacity. Lastly, there was also a call to remove any unnecessary detail that may encourage fraud activities including the geolocation aspect (Participant C4). A strong call was made to maintain participant/user information secured and confidential. It is, therefore, important to realise the synergies in the proposed value propositions, the current value propositions, and the desired key activities (see Table 4.45 below) if a sustainable social business model for Food for Us mobile application is to be designed and developed. This shows how key activities as a business model element is critical in the designing and development of a sustainable social business model for the Food for Us mobile application.

Table 4.45: Additional activities or functionalities to make Food for Us mobile application more diverse and self-sustaining

Source	Additional activities or functionalities			Evidence
F1	*App banking services/ Online payment portal*			*Why can't the app not have a simple way of paying to the farmers? …all transactions should be done right there*
C1				*…include a payment function on the app*
F16				*Payment on the app – include the payment plan on the app itself and create instant receipts as proof of payment to prevent cash transactions*
F12	*Diversify*	*Other commodities*	*Waste sale*	*Don't limit to produce market only but include some products like e-waste or farm waste products*
F4				*Allow trade of all waste i.e. glass bottles, beer bottles for recycling, metal, plastics etc.*
X6				*Diversified the types of commodities traded, e.g. scrap metal, plastic or glass*
X14			*Livestock sale*	*The app can also involve selling of livestock than just surplus food*
F4		*Advertisements*		*allow advertising of food stuff and allow buyers to post what we are looking for*
C12				*…advertise through the app*
C8	*Member verification and vetting*			*Verification section on the app, to vet or verify every part before completing a transaction*
F20	*Feedback portal*	*Feedback push buttons*		*Feedback push buttons*
		Transaction rating		*…transaction rating after every sale via the app*

Table 4.45 above shows a concurrency to Table 4.44 previously discussed. It is interesting to note that more or less the same additional functions were reported. Of interest is the need to diversify the functions of the Food for Us mobile application not only to be limited to surplus food supply but to other commodities like e-waste, scrap metals, glass bottles,

plastics, livestock, among others. Advertisement space was also highlighted as a probable way to diversify the Food for Us mobile application functions. What is also coming out in this study is the importance of information security and confidentiality, and feedback for continued learning and improvement purposes. Inclusion of App banking services/Online payment portal is viewed as diversifying and as a security protocol to avoid fraud. Member verification and vetting as a security measure and the integration of a feedback portal can facilitate communication between the users and the App developers, with the intention to further learning from the process and improvements in products and services in order to better the Food for Us mobile application functions. Again, the main assumption here is that by adding more key activities and functions on the Food for Us mobile application it would make the mobile application more diverse, attractive to more users and be able to generate enough funding to cover the operational costs of Food for Us mobile application.

Activities on their own may not be adequate, and hence the study further probed the quality control structures (see section 4.4.15 above, and Table 4.46 below) that can ensure the perceived key activities done on the Food for Us mobile applications are responsive to customer needs. The anticipation here was that when adding activities onto the Food for Us mobile application the prime purpose is to respond to users' needs.

Table 4.46: Summary analysis on the quality control structures to ensure the key activities done on Food for Us mobile application is responsive to customer needs

Source	Quality control structures	Evidence
F12	*Ban or strike out deceivers*	*As a buyer I want the sellers to be honest if they deceive me of their product, they must be recorded by the app owners for warning or even banned from using the app*
F8	*Billboard/Chart board ratings*	*Moderation and monthly results on ratings*
F13		*Strike out non-performers or low-quality producers*
F11		*If a seller or a buyer on the point system gets to a particular low level of points because of bad products, they must be removed or suspended for a period of time*

X8		*Chat board – where highest and lowest rate clients or users are reported as a way to encourage quality*
X1	*App rating*	*The rating functions of the app experience so that the developers may be responsive to the users*
X7	*Product/Services Rating/Testimonials*	*Rating function for the product or service*
X3		*Product or service rating – include time turnover of the transaction*
C10		*Testimonials functions on the app to encourage repeated transactions*
C6		*Having testimonials on the app and rate your experience*
X6	*Checking questions on uploads*	*…put some checking questions when users are uploading what they are selling*

Table 4.46 above shows five quality control structures to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs. The above suggested five quality control structures are addressing most two important aspects, that is, information security and confidentiality as well as safe feedback. This is not the time to have these aspects addressed but there is urgency and priority. Hence, information security, confidentiality, and giving safe feedback without offending other users are important elements to consider in designing a sustainable social business model for the Food for Us mobile application. The assumption here is that if users' information and confidentiality are safeguarded through the various structures suggested and there is a clear line of feedback, the users are likely to be responsive, resulting in improved product and service quality and continued social learning via the Food for Us mobile application. The study went on to determine the customer segments that make Food for Us mobile application diverse and self-sustaining.

- **<u>Customer segment</u>**

After a deeper understanding of the cost structures, value propositions, and key activities it was important to determine the customer segments of the Food for Us mobile application since these are the users who make the mobile application viable and sustainable. Table 4.47 summarises insights gained (see section 4.4.11 above) on the customer segments.

Table 4.47: Analysis of the customer segments for Food for Us mobile application

Source	Customer Segments	
F4, X2, X5, X3, C6, C3	**Users**	*Farmers*
F4, x2, X5, X3, C6, C5		*Buyers*
F4	***Consumers***	*Ordinary people*
F4, X2, C6		*Retailers*
F4		*Vendors*
F4		*Schools*
X2		*Community*
C3		*Businesspeople*

As shown in Table 4.47 above, two broad customer segments were identified as the users of the Food for Us mobile application and the consumers of the farm produce. The users were the most mentioned followed by retailers, and a potential value was also seen in ordinary consumers, vendors, schools, and the community members. Understanding the customer segment is important so that none of them are excluded from using the Food for Us mobile application. Excluded customer segments are summarised in Table 4.48 below.

Table 4.48: Summary of the analysis on the excluded customer segments for Food for Us mobile application

Source	Excluded customer segments		Evidence
F15, C2	**Users**	**Buyers**	*Buyers in town*
C8		***Commercial farmers***	Commercial farmers
F2	**Middleman**		*There are some middlemen who should also use the app*
F13	***Agricultural extension officers***		*Those people who connect us farmers to potential buyers; agricultural extension officers who advise us on cropping*
F10, X7	***Consumers***		*Schools, retailers (wholesalers – PnP, Checkers), local food shops, LEDs*
X12			*Hospitality industry*

Table 4.48 above shows four customer segments that are currently perceived as excluded from the operations of Food for Us mobile application. Notably, the users namely, buyers in

town and commercial farmers; the middleman; Agricultural Extension Officers; and the Consumers in the hospitality industry, schools, retail sector and the LEDs. The study findings' analysis shows why it is important to consider the customer segments, both current and excluded, as it helps in the planning of the key activities, value propositions, cost structures and revenue streams to design and develop a sustainable social business model for Food for Us mobile application. Secondly, it is important because it allows the inclusion of all stakeholders, making the social enterprise diverse and inclusive. Hence, determining customer segments is a critical social enterprise and business element necessary when considering designing and developing a sustainable social business model like for Food for Us mobile application.

There is also need to understand the structures that are necessary to be included to retain the customer segments and make the Food for Us mobile application more socially acceptable, accessible and user friendly (see section 4.4.11 above, and Table 4.49 for a summary of these findings).

Table 4.49: Analysis summary on the innovation structures to retain customer segments and to make the Food for Us mobile application more socially acceptable, accessible and user friendly

Source	**Proposed innovative structures**		**Evidence**
F14	*Interactive*	Voice narrations/*Voice notes*	*I would want some voice narrations to help the elderly farmers and buyers who have short eyesight*
X5			*include voice notes for easy use and availability for old people*
F8		Quality graphics	*Quality graphics for easy and presentable marketing of produce*
C1			*Quality graphic design to be attractive*
F2		*Feedback*	*recommendation or testimonial sections for us to keep tracking our suppliers for quality produce*
F1			*…include some sections where the farmer can connect them through the app*
F12		*View profiles & geolocation*	*…view the profiles of the seller and their locations.*
F16			*…multiple languages, I would like to include isiXhosa and isiZulu on the app*

X8	Accessibility	*Language*	*include multiple languages i.e. isiXhosa and isiZulu*
X10			*include language options so that the application serves people of different linguistic backgrounds*
C9			*include vulnerable languages such as isiXhosa*
X16		*Whitelisting the App*	*Negotiating with service providers for the app to be whitelisted or for there to be free mode*
C10			*Enable other operations to be usable offline*
C6		*Voice notes*	*include voice narration for those who cannot read*
C15	*Information Privacy, confidentiality, and security*		*we will recommend personal information of the users be controlled by the app developers only*

Table 4.49 above shows three major innovation structures to retain customer segments and make the Food for Us mobile application more socially acceptable, accessible and user friendly. These are Interactive, Accessibility and Information privacy, confidentiality, and security structures. Four key structures/activities were highlighted namely, addition of voice narrations/voice notes; quality graphics; inclusion of feedback structures to make the Food for Us mobile application more interactive and user friendly. However, the last interactive feature or structure suggested that viewing of participants' profiles and geolocation is problematic as mentioned earlier. But the main concern is around safeguarding participants' information security and confidentiality in case some participants have bad intentions.

The other structure suggested was easy accessibility of the Food for Us mobile application. The suggestion focused on user friendliness and responded to a concern raised earlier on cost structures, particularly around the cost of internet data needed to use the mobile application. Again, the suggestion here is to *"negotiating with service providers for the app to be whitelisted* (Participant X16) and/or to "*enable other operations to be usable offline"* (Participant C10). Innovative structures identified were on multi-language, inclusion of voice notes and whitelisting the mobile App as described above. Lastly, the concern around information privacy, confidentiality and security was suggested. On this, Participant C15 recommended that "…*personal information of the users be controlled by the app developers*

only". This limiting of access to personal information of participants to keep it out of the reach of the public domain would help to discourage bad intent on the part of other participants. The summarised analysis shows the importance of putting in place innovative structures to retain customer segments and at the same time maintain the Food for Us mobile application as user friendly, socially acceptable, and accessible to all.

- **Revenue streams**

Revenue streams are also important to consider in the designing and development of a sustainable social business mobile application for Food for Us mobile application (see section 4.4.4 above, summarised in Table 4.50 below).

Table 4.50: Summary analysis on the revenue streams to make Food for Us mobile application's operations socially inclusive

Source	Proposed revenue streams		Evidence
F3	**Contributions, subscriptions & commissions**	**Corporative subscriptions**	*As farmers we are in cooperatives so if we can a system where a cooperative can contribute to the operation easy than me paying as an individual*
F16		***Donations after a successful sale***	*you can as well donate towards the sustenance of the app*
X14		***Advertising platform***	*…for example, agricultural stores can advert pesticides and fertilizer on the app and the app developers, we charge some fee*
F5	**Fundraising**	**Donations**	*…ask for donations like the way they do at Shoprite they put small boxes on the till where people can drop coins*
X5			*open the app to the public to donate towards the social good*
F2		***Fundraising***	*as farmers we could fundraise to make extra revenue*
X2			*maybe through project proposal and funding writing*
C6			*raising funds for running the App by talking to some donors*

C9			*fundraising for continued grant or funding*
X7	**Adoption & Government funded**		*Adoption and funding by government*
C11			*engage the government on the possibility for long term funding of the app as is with the Mom Connect App*

Table 4.50 shows three major revenue streams that may be considered for the Food for Us mobile application namely: contributions; subscriptions and commissions; fundraising and adoption; and government funding. Generative revenue structures in the contributions, subscriptions and commissions revenue streams category included consideration of corporative subscriptions; donations after a successful sale; and an advertising platform. This is the first time donation after sale was mentioned but the rest were proposed in the key activities and value proposition sections. The reasoning behind this is that providing advertisement, donations and subscriptions opportunities on the Food for Us mobile application could generate revenue towards the continued operations of the mobile application, and thus providing some level of financial sustainability.

The other revenue stream suggested was fundraising "*as farmers… to make extra revenue"* (Participant F2), "*through project proposal and funding writing"* (Participant X2), *"…by talking to some donors"* (Participant C6) and "*continued grants or funding"* (Participant C9). What came out strongly in the analysis is the need to find some supportive revenue generative mechanisms like grants, donor funding and others. However, these revenue streams are not sustainable in the longer term, considering that funding has a shorter term life span, and this is what produced the problem that needed to be investigated in this study.

The last revenue stream considered was adoption and government funding. In essence, there have been strong calls to "*engage the government on the possibility for long term funding of the app as is with the Mom Connect App*" (Participant C11). A strong proposition was to find support from government for adopting and funding the mobile application. There is a strong understanding that the above perceived revenue streams will make Food for Us mobile application socially inclusive.

- **<u>Customer Relations</u>**

The study further determined the customer relations that are necessary to consider in the designing of a sustainable social business model for the Food for Us mobile application (see section 4.4.13 above, and Table 4.51 below for a summary).

Table 4.51: Summary of findings on customer relationships

Source	Customer relationships		Evidence
F4	**Training/Workshops/Peer training**		*Training*
F19			*Workshops*
C2			*…farmer support chat or platform where farmers may support each other with their farming practices*
C7			*…options to watch videos that maybe of importance to farmers*
F1	**Feedback**	**Loyalty points**	*Loyalty points for every sale made on the platform*
C5		**Rating systems**	*…Include customer rating system - colour code system*
C1		**Transaction rating**	*Clients should be able to rate their transactions.*
F10		**Chat features**	*…a chat feature whereby we as buyers we can have a brief discussion with the sellers*
F1			*Include a place where farmers or buyers can ask for advice maybe on something happening to their crops or how to prolong shelf life of their produce*
X10		**Call features**	*include a dial feature where a seller and buyer can discuss their trade and agree the prices*
X2		**Anonymity**	*Include an anonymous platform where users may choose to be anonymous on their feedback*
C4		**FAQ**	*…Include FAQ for people to quickly get answers*
X14		**Toll free**	*Toll free number for easy inquiries*
F17	**Interactive**	**Advertisement space**	*Put more advertising materials and colourful pages makes it interactive and attractive*
F12	**Accessibility**	**Language**	*include isiXhosa and isiZulu*
F20		**Audio notes**	*include audio notes on the app*

Table 4.51 above shows four major ways in which the Food for Us mobile application can be improved to enhance customer relations. As shown in the finding's summary, the four ways included integration of knowledge dissemination and sharing through workshops, training, and peer training opportunities. It was suggested that there could be some sort of training to build capacity and integrate peer training or a chat function onto the mobile application "*where farmers may support each other with their farming practices"* (Participant C2) and where users can "*…watch videos that maybe of importance to farmers".* In essence, the mobile application can be used as a training and learning tool promoting knowledge sharing.

Secondly, feedback among the users and to the mobile application developers was also thought of as one of the ways to enhance customer relations on the Food for Us mobile application platform. Such feedback tools included feedback on service or product in the form of "*loyalty points for every sale made"* (Participant F1); "*customer rating system using colour code system"* (Participant C5); and transaction rating (Participant C1). Another form of feedback raised was facilitating communication between the users themselves and feedback to the mobile application developers. Integration of chat and call features was thought to facilitate communication and negotiations between the users, while anonymity, FAQ and toll-free facilities were understood to enhance feedback to the mobile application developers and allow ease of access to information on the mobile application platform. If these feedback initiatives are to be integrated onto the Food for Us mobile application, they would enhance better communication, ease of access to information and increase customer relations.

Lastly, interactivity and accessibility can enhance customer relations on the Food for Us mobile application. This can be made possible by adding advertisement columns (Participant F17) and inclusion of accommodative languages *"isiXhosa and isiZulu"* (Participant F12) and "*audio notes"* (Participant F20). Thus, customer relations are a critical aspect to consider when designing a sustainable social business model for Food for Us mobile application.

However, as highlighted in Table 4.49 it is notable that feedback between the users and mobile application developers is critical in enhancing customer relations on the Food for Us mobile application. Therefore, the study sought to determine ways in which the users wanted to engage with feedback, give testimonials, or recommend products or services rendered via

the mobile application while at the same time maintaining customer relations, as summarised in Table 4.52 below.

Table 4.52: Summary of ways to include feedback, testimonials or recommendations on the mobile application for maintaining customer relations

Source	Customer relationships	Evidence
F2	**Anonymous rating/feedback/testimonials**	*… anonymous rating system for the product and a separate one for the service*
X5		*Moderate system feedback channels, anonymous rating of products and services*
C5		*Rating systems, colour code, scale system*
X1		*Include a transaction or customer rating system…*
F8		*Rating the buyer on their honesty…*
F6		*Use the emoji to reflect on the quality of service or product*
F16		*…use colour codes: green for good, yellow for best, red for bad*
C19		*we will develop a section on the App where we will upload the testimonials of the users. The testimonials will be vetted before uploading*
C8		*Include the testimonial section on the app. For users to feedback and rate every transaction*
X7	***Feedback chat platform***	*Feedback chat platform*
F11		*There could be a number where we can send our complaints about each other then, the admin sends the feedback to the other person without tracing back to us*
C12		*…App developers should put your email on the App that can allow customers to reach out.*
C6		*Feedback platform that feeds to Food for Us then it sends on to the seller by admin withholding the identity of sender*

As shown in Table 4.52 above, two important ways of feedback were highlighted namely, Anonymous rating/feedback/testimonials and integrating a Feedback chat platform (Participant X7). What is of great interest here is the issue of anonymity which was highly expressed, and this make sense considering that the purpose of feedback was to improve product and services quality without offending the other user. So anonymous rating of the product and services using colour codes (Participants C5; F16); emoji (Participant F6) to reflect was recommended. Secondly, the idea of including a testimonial section (Participants C8; C19;

onto the Food for Us mobile application. Added to that was also the idea of vetting the feedback by the App developers before uploading onto the Food for Us mobile application (Participant C19). Lastly, the idea of feedbacking transaction and services to the App developers through a feedback chat platform (Participant X7) which is only accessible to the App developers. The thinking behind is for verification and vetting purposes by the App developers before uploading the feedback onto the Food for Us mobile application (Participants F11: C6). As said before, if these innovations and ways of feedbacking are carefully integrated onto the Food for Us mobile application, there is likely to be increased customer relations. Few things to note here is the importance of feedback as a tool for continued learning and the importance of information verification and anonymity to protect users' confidentiality and keep customer relations integral.

With this, it is important to determine measures that can be put in place to ensure data and information security of the customers of Food for Us mobile application, and maintain customer relations (see section 4.4.12 above), and summary in Table 4.53 below:

Table 4.53: Summary of the measures to ensure data and information security of the customers of Food for Us mobile application

Source	Data and information security	Evidence
X1	**Registration verting & verification**	*Vetting users on registration, requiring FICA documents*
X9		*… all users are verified of their identities, for example if we are dealing with SA users there are unique government ID numbers that can verified at DHA offices*
C4		*…all registered users must have gone under a vetting system*
C2		*Verification after a completed transaction*
C10		*The users themselves must make sure they have gathered adequate information about the person before making business decisions such as payments*
X20	**POPI Act protocols**	*Security protocols aligned with POPI Act and other security of information protocols and registration*
C1		*Information security encryptions*
X8	**Restricted access to Biography information**	*Only the developers should have access to the user's info*

Table 4.53, shows three critical measures that can be integrated or employed to maintain customers' data and information security at the same time increasing customer relations on the Food for Us mobile application. The three measures are registration verting and verification of all the users using their FICA documents (Participant X1) and further verifications through the DHA offices (Participant X9). Secondly, aligning and observing the POPI Act protocols in the registration of customers/users onto the Food for Us mobile application (Participant X20) and ensuring information security encryptions (Participants C1) as other ways to enhance data and information security. Lastly, restricting access of biographic data only to the App developers (Participant X8). In essence, the three measures emphasise on vetting and verification of all users when registered onto the Food for Us mobile application, but this on its own it is not enough. There should be other immediate measures to protect the users' biographic data, and this could be by security encryptions and restricted access to the database. The thinking behind was that, if the users' biographic data is secured, anonymity and confidentiality are high, and feedback becomes positive towards continued learning and product/service improvement and customers relations are maintained positive. The study went on to determine the communication channels necessary to make the Food for Us mobile application financially self-sustaining.

- **<u>Channels</u>**

Channels were one of the critical sustainable social business model elements to consider in designing and developing a sustainable social business model for the Food for Us mobile application, as examined in section 4.4.13 above and summarised in Table 4.54 below:

Table 4.54: Summary of the finding and insights analysis on communication channels

Source	Communication channels		Evidence
F1		**Feedback/review portal**	*The App should have a section where I the buyer I am disappointed with a transaction, I must share with the developer*
F7			*Review section – for us the users to communicate or feedback the developers*
F15	**Feedback/review portal**		*There should be a section where we can write complements or complains*

			sending directly to the developers and not to show on the app
F17			*Toll free number must be included on the app*
F13		**FAQ section**	*Instant messaging application where you can ask questions and get instant answers*
F3		**Contact us section**	*Include the contact us section for a quick response*
			the App can have some section to have an option to send a message to the App developer directly
C3		**Chat function**	*Chat function – include the customer feedback chat function*
C6			*Chat function on the App, to chat directly to the developers*
C4		***Toll free number***	*… which can be used by the users to feedback the App developers*

Table 4.54 above indicates the need to maintain information security and confidentiality. The need for information security and confidentiality is not new and was been discussed earlier (see section 4.4.12). This shows that information security and confidentiality holds an important role when designing a sustainable social business model. The role of feedback was also noted. Feedback to each another and feedback to the mobile App developers were established as important communication channels, at the same time maintaining users' relationships. The data shows that feedback is seen to play a critical role in continued social learning processes and in improving the products and services rendered via the Food for Us mobile application. This serves well the assumption held in this study that communication channels on the Food for Us mobile application would help in enabling the necessary feedback and innovations.

However, communication channels in themselves are not enough there is also need for concrete communication structures that hold the whole premise together (see section 4.4.13 above and summary in Table 4.55 below).

Table 4.55: Other possible communication structures to allow the users to send positive or negative feedback on the product, transaction, or services via Food for Us mobile application

Source	Communication channels		Evidence
F5 X3	**Transaction/service rating**	**Stars**	*As a buyer I would like to rate the seller about their way of conducting business. So, you can put a rating track of stars on the app*
F2; X3; X7		**colour code**	*Rating using colour code*
F19, X3; X7		**Stars or Points (minus a point or add a point after a bad/good service/product)**	*We can rate each other using stars or points, if you give a bad product, the point is a minus and then if you get a good review, a product is added*
C4			*Users rate each anonymously using a point system. If you lose all points due to bad business, you are suspended*
F1, X3		**Emoji**	*Rating system using emoji. Rating system after every transaction*
C13	**Feedback portal/channel (to App developers)**		*We as the App developers can structure a channel where we receive comments from both sellers and buyers to our mail and we act according to the comments*
X11	**Anonymous rating/feedback**		*Anonymity – should be anonymous rating or feedback. I wouldn't want to know or let the person I rate low know*
C9			*The App developers can put in place rating systems that ensure reviews of transactions conducted in the app*
C10	**Review section**		*where users review each other using colour code or emoji*

Table 4.55 above reveals the four communication structures that can be put in place. However, the central theme here is information security and confidentiality. It is interesting to realise that anonymity is central in all the communication structures suggested. As argued by Participant X11 that, "*…should be anonymous rating or feedback. I wouldn't want to know or let the person I rate low know."* Suggestions were: The use of stars for rating where the best service gets five stars and the worst gets 1 or no stars at all; the point system where after every successful transaction the users score each other a point and for any poor service experience a point is subtracted, meaning that the user who accumulates many points had provided the best services and products; or an emoji system where the emoji facial

expressions of happiness, sadness, smile etc. can be used to indicate customer satisfaction or the lack thereof; and the colour coding system, where every level of satisfaction is colour coded so that the Food for Us mobile application user would review or give feedback by using a colour code to express his/her level of satisfaction. This would allow the users to provide positive or negative feedback on the product, transaction, or service without offending the other party. In essence, the above suggested channels can safely be referred to as non-offensive communication channels. They have the potential to encourage truthful feedback for continued social learning process and improvement of the services or products, making the Food for Us mobile application associated with quality. These communication channels can attract more and repeated users thus making the Food for Us mobile application more viable and versatile in the marketing business.

However, channels should not be limited to information alone but also include safe payments as probed earlier (see section 4.4.14 and summarised in Table 4.56 below).

Table 4.56: Summary of the analysis on safe financial channels

Source	**Financial channels**	**Evidence**	
X2	***App banking / Online payment modes***	*EFT*	*Instant EFT*
C4			*instant EFT facility*
X10			*include EFT that is linked to the bank of the App developer*
X2		*PayPal*	
X2		*PayFast*	
X2		*Debt or Credit Card on the app*	
C1		*An online payment portal with secured payment*	

Table 4.55 above shows that the integration of a mobile banking app or online payment mode onto the Food for Us mobile application is viewed as the safest transaction payment channel. Such online payments should accept the following modes of payments: EFT, Paypal, Payfast, Debit or Credit card. The anticipation here is for safe payment, if all the transactions can be completed on the Food for Us mobile application, then insecurity issues are overcome and the risk of travelling to meet a seller with hard cash on you is solved. In essence, an online

banking facility on the Food for Us mobile application can increase users' confidence and security. It also allows for easy record keeping and is helpful for evaluation purposes.

How to support customers' confidence when transacting on the mobile application was also probed, with insights summarised in Table 4.57 below.

Table 4.57: Summary of the analysis of strategies to enhance customers' confidence in relation to transaction or product on the Food for Us mobile application

Source	Strategies on Customer confidence		Evidence
F3	**Feedback systems**	**Product/Service Rating systems**	*Customer ratings also gives confidence to suppliers*
X1			*The rating system would inspire confidence in highly rated sellers*
C2			*…rating can increase confidence*
C7		**Testimonial system**	*Having seller testimonials where buyers are happy with a seller can written a testimonial on their profile*
C8			*Testimonials increase confidence and gives an idea of quality of product*
F5	**Security features**	***App banking / Online payment portal***	*I feel confident to make a payment on the app*
F13		**Registration Vetting & Verification**	*If there was a vetting process at the point of registration, then all buyers on the App would be confident about all sellers*
F6			*Registration and vetting process - this will make us confident*
X7			*…vet all App users so that they have a good track record*
X11			*Knowing that all users have been vetted will bring confidence*
C2			*Transaction verification…*
F1		**Security features**	*I will feel more comfortable and confident to use the App to access the product or services if there are security features to prevent fraud or harm*

Table 4.57 above, shows two major strategies perceived to enhance customers' confidence on the transaction or product on the Food for Us mobile application. The two major strategies are feedback systems (Product/Service Rating systems and Testimonial system) and security features (Online payment portal; Registration Vetting and Verification; and Anti-fraud

Security features). The assumption was that if customers feel confident to perform any transactions via Food for Us mobile application it adds some value to the mobile application, and this can enhance more income generation towards the sustenance of the mobile application. It is notable that customer confidence is one of the important aspects to consider in designing and developing a sustainable social business model for Food for Us mobile application. The study went on to determine the key resources to be considered in designing and developing a sustainable social business model for the Food for Us mobile application.

- **Key Resources**

Of importance here was to come up with strategies to make the key resources cost effective. As reported in section 4.4.15 above, the study included questions on cost effectiveness, with summary findings presented in Table 4.58 below.

Table 4.58: Summary analysis of strategies to make the key resources to make Food for Us mobile application cost effective

Source	Strategies on Customer Confidence		Evidence
C5	***Intellectual properties***	**Institute host**	*Why not hosting the App under institute like Rhodes, and the App become RU responsibility as part of CSR and community engagement*
C2		**Buy ownership & hosting rights**	*it is better to buy intellectual properties like rights than being hosted per subscriptions*
X8			*The App ownership needs to be more defined. Once defined, buying the rights so that more affordable developers may be sought*
X10			*…if a group of farmers or sellers insist to buy and run it themselves, it will be more cost effective to them*
C10	***HRM-training***		*Train the farmers to be able to maintain and update the App functions*
C20			*We can also think of using human resources available within the App developers to continue running the App without putting new costs on the developer*

C2		*if the App becomes institutional for example part of Rhodes University, then the resource could be pulled from the institution*

Table 4.58 above shows two important considerations regarding intellectual property rights and Human Resources Management (HRM) to help make the Food for Us mobile application cost effective. There are two options suggested pertaining the intellectual properties namely, buying the ownership and hosting rights and adoption by a tertiary institute who then becomes liable for the operational costs of the mobile application including the web hosting. Another option was suggested around the HRM, whereby training of a few individuals in the actual mobile App management, including adding and removing applications on the Food for Us mobile application, would lessen HRM related costs. In essence, this shows that the above two suggested structures can help in making the Food for Us mobile application key resources cost effective, and this can in turn make the mobile application self-sustaining. Hence, key resources cost effectiveness is one aspect to consider in the designing and developing of a sustainable social business model for the Food for US mobile application.

4.6 Conclusion

In summary, the chapter offered a thick description of the data. It firstly reported on three primary key stakeholders of the Food for Us mobile application namely, the Users (farmers and buyers) and other partnering stakeholders like the Experts and the Consortium. These three key stakeholders were further described according to their salient status. The study noted how important individual salient status is, in the designing and development of a sustainable social business model for the Food for Us mobile application. The chapter further highlighted how social enterprises elements play a critical role in the designing of a sustainable social business model. Elements such as social inclusivity and exclusion, financial sustainability, ethical and social acceptance, interactive and accommodative options were noted to be important. Offering careful presentation of the data as structured by the enquiry questions and then summatively analysing according to the business model canvas categories, the chapter shared case specific insights into the current key activities; the excluded, perceived or additional activities needed; current and other expected value propositions; current cost channels; and further cost structures needed to maintain the Food

for Us mobile application's financial sustainability. Current and omitted customer segments; current and ideal additional revenue streams; current customer relations structures and further strategies to enhance these; key resources and how they can best be maintained in a cost-effective way; and the channels available – both financial and communication – were analysed. In essence, this chapter raised in-depth understanding and awareness on both the existing and/or experienced operations, as well as the potential of the Food for Us mobile application from a socially inclusive business modelling vantage point. The chapter has generated rich contextual information and understanding worthy of sharing with the involved key stakeholders to further design and implement the sustainable social business model suggested. The next chapter discusses these findings and their implications for the sustainability of the Food for Us mobile application and offers a prototype business model canvas for the Food for Us mobile application which can potentially be used to shape its future development.

Chapter 5: Discussion of Study Findings

5.1 Introduction

Drawing on the detailed presentation and analysis of the data in Chapter 4, this chapter discusses study findings. This involves further summary and analysis, and reflection on the findings through drawing on the literature and theoretical tools that were used to guide the study. The chapter covers the key stakeholders (section 5.2), as well as the key elements of a social enterprise business model (section 5.3). The chapter summatively offers a proposed business model as outcome of this inquiry and analysis (section 5.4).

5.2 Key stakeholders

As reported in Chapter 4, the study findings show, firstly, that there were various key stakeholders and beneficiaries in the context of Food for Us mobile application. Secondly, because "*everyone benefited*" (as suggested by Participant C12) in the process, all the involved stakeholders had an important role to play, and they became key stakeholders even though they possessed differing salience statuses. This is in line with the salience model key stakeholder identification and categorisation process (Mitchell, Agle & Wood, 1997). The benefits accrued ranged from access to ready markets, reduction in food waste, carbon reduction, sustainable production, capitalising on consumption behaviours and, lastly, networking opportunities and financial benefits (see Table 4.32 and 4.33).

The key stakeholders identified include the primary Users (farmers and buyers); the Consortium, particularly the app developers; the Experts (Sustainable Education Partners; Business Modelling and Tech Transfer Experts; the Social Innovator, the Funders and the Researchers in the sustainable food systems and local food economies); and, lastly, several government departments, including the DRDAR, DWYPD, DTI, and the Intermediaries (LED Offices). An unusual addition to the key stakeholders was the schools feeding schemes because of the potential value they have as buyers and recycling engines for all the potential food waste, thereby contributing enormously to the mobile application motive. Notably, and as shown in Chapter 4, the above-mentioned key stakeholders were found to possess differing salience statuses in the form of power legitimacy and urgency towards the functioning and sustenance of the Food for Us mobile application and, as such, play varying

roles (Mitchell, Agle & Wood, 1997; also see Chapter 2, Figure 2.1 in Stakeholder Theory section and Figure 2.3, Stakeholder Typology).

It is, therefore, important to discuss the above identified key stakeholder salience statuses towards the better functioning and designing of a sustainable social model for the Food for Us mobile application. The farmers, as part of the primary users group, were found to possess high legitimacy (as the food producers) and high urgency (needing to sell their surplus food produce quickly). In line with proposition 1b (Mitchell, Agle & Wood, 1997) the farmers are "moderate salience stakeholders" and are described as dependent stakeholders in the Food for Us mobile application. This is because the farmers possessed high legitimacy, high urgency but had low power to change the status quo, hence, they depend on those stakeholders who have the power to make the Food for Us mobile app operational for their continued benefit. This finding shows that even in the workshops, despite their legitimacy and urgency as immediate users, the farmers' contributions were light because they lacked power to self-sustain the functions and operations of the Food for Us app.

The second category of key stakeholders in the Users group were the buyers, who were described as both key to the functioning and critical in the designing of a sustainable social business model for the Food for Us app. The buyers were found to possess high power (can determine what and when to buy) and high urgency (market oriented/demands) but with low legitimacy. In line with proposition 1b (Mitchell, Agle & Wood, 1997) the buyers have absolutely no legitimacy claim to the mobile app but have both power and urgency, categorising them as dangerous stakeholders in the Food for Us mobile app. This is because they have power to determine and control the market and to legitimise the use of the mobile app through their participation. Overall, these study findings show the critical roles the Users play in the functioning and continued operations of the Food for Us mobile application. It was important to include them (farmers and buyers) and to consider their views in the designing and development of a sustainable social business model since, after all, the mobile application was designed for them to use. The Users are key stakeholders if the Food for Us mobile app is to be successful.

In addition, the study findings show that the Consortium, particularly the app developers, are a key stakeholder in the context of Food for Us mobile app. In line with the proposition 1c (Mitchell, Agle & Wood, 1997) the app developers have high power (since they designed and have the hosting rights of the mobile app), high legitimacy (because they are the legal owners of the mobile app) and high urgency (the continued use of the mobile app keeps them relevant and profiting from the mobile application. This means the app developers are definitive stakeholders in the Food for Us mobile application. It is also understood that being a definitive stakeholder as they are, they have the overall control of the mobile application, and they make changes and decisions with a direct effect/influence on the functions of the mobile app. They therefore make up part of the critical stakeholders to include in the designing and development of a sustainable social model for the Food for Us mobile app. This finding is in line with Mitchell, Agle and Wood's (1997) proposition 1c as mentioned earlier.

The study further identified the Experts group (Sustainable Education Partners; Business Modelling and Tech Transfer Experts; the Social Innovator, Funders and Researchers in the Sustainable Food Systems and Local Food Economy fields) as key stakeholders, who play varying roles in the Food for Us mobile app. In line with proposition 1b (Mitchell, Agle & Wood, 1997) the Experts possess power and legitimacy but do not have the urgency. They are described as moderate salient stakeholders but dominant. The fact that they possess the funds, knowledge and expertise gives them the power and legitimacy to the mobile application (although legally limited) but they don't have the urgency to see the mobile application functional. This justifies the intensity and command evident in their contributions in the workshops, and explains why they tackled confidently and dominated when contributing responses to some critical questions regarding the development and designing of the sustainable social model for the Food for Us mobile application. This finding too conforms to Mitchell, Agle and Wood's (1997) proposition 1c.

Lastly, the study found that the several government departments key to the continued existence and successful operation of the Food for Us mobile application are likely to play differing roles and possess varying salient statuses. For instance, the DRDAR possess high urgency only. In line with the proposition 1a (Mitchell, Agle & Wood, 1997), the DRDAR is a demanding stakeholder with a low salience. Similarly, the DTI only possesses power, which

makes it another demanding stakeholder (*Ibid*). While the DWYPD possesses high power, high legitimacy, and high urgency. According to proposition 1c (Mitchell, Agle & Wood, 1997) DWYPD thus becomes another definitive stakeholder. Finally, the Intermediaries (LED Offices) possess none of the three characteristics, making them a non-stakeholder group but very important to the continued functioning of the Food for Us mobile application.

As Ackermann and Eden (2011) suggested, the above-mentioned key stakeholders can be categorically represented as in Figure 5.1 below.

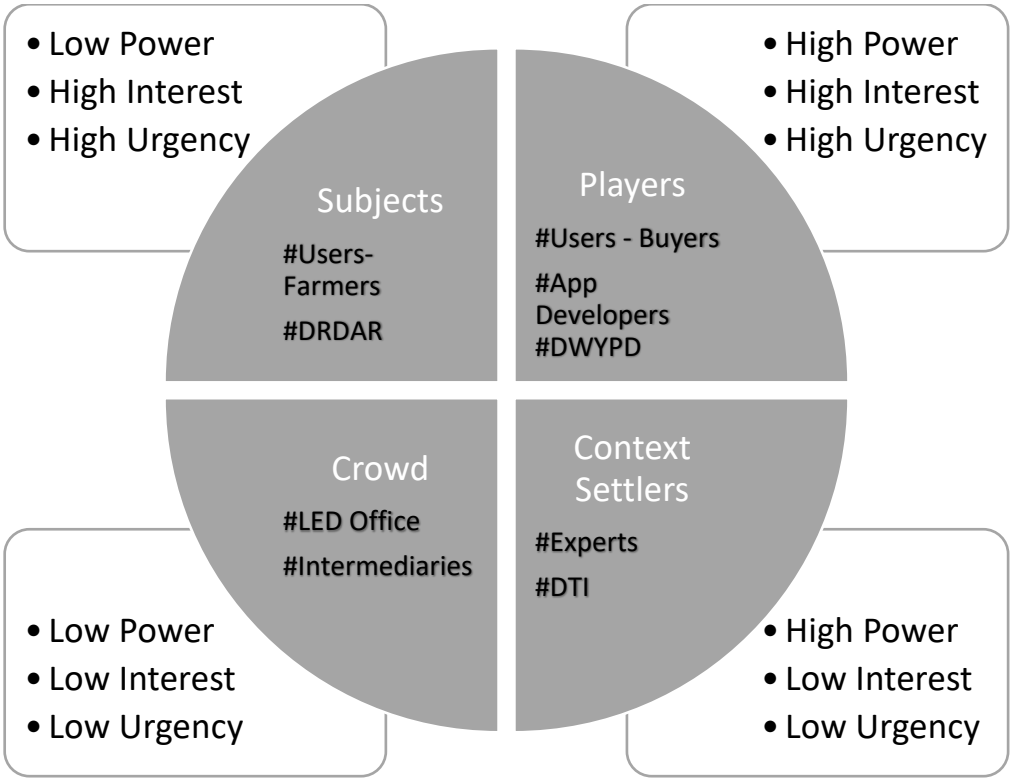

Figure 5.1*: *Power-interest grid stakeholder analysis

As shown in the power-interest grid stakeholder analysis (Figure 5.1) the stakeholders had varying roles and these roles can also be related to their power and interest. The buyers, app developers and DWYPD are the key players, while the group of Experts and DTI are content settlers in the Food for Us mobile app. The farmers, together with the DRDAR are subjects, while the intermediaries, such as the LED office are a mere crowd. But we should not downplay the role each stakeholder plays as is shown above. It is important to include and

involve all these stakeholders in the development and designing of a sustainable social model for the Food for Us mobile application.

5.3 Key Social Enterprise Elements to consider for the Food for Us mobile application

The study found two critically important social enterprise elements to consider in the designing and development of a sustainable social model for the Food for Us mobile application namely, financial sustainability (including self-sustenance, diversifiable income-generating streams) and social inclusion (including economic inclusion, and other types of inclusion such as access and language). In essence, social enterprise involves entrepreneurship strategies to sustain operations while making profit for some stakeholders (Leonidou, 2018; Muñoz & Kimmitt, 2019; Komatsu Cipriani et al., 2020). It is imperative to understand that in social enterprise the primary goal is not profit but social impact (Cornforth, 2020; Javed, Yasir, Ali & Majid, 2020). However, since there are inevitably some costs related to the social impact, this could be dealt with by using entrepreneurship strategies, such as value proposition and value addition (Powell, Gillett & Doherty, 2019; Fowler, Coffey, & Dixon-Fowler, 2019).

The key issue to argue is the need for the Food for Us mobile application to be financially sustainable in order to become operational and remain relevant to its primary beneficiaries. The study makes evident that the Food for Us should be affordable and provide a wide range of functions beyond the selling of surplus food. There is need to diversify the functions of Food for Us mobile application beyond food waste to include other avenues such as e-waste, and solid waste. The study findings revealed dissatisfaction with the limited functions and operations offered on Food for Us mobile application. Other functions suggested include e-transactions on the mobile app.

Financially, there are various ways in which the stakeholders may contribute towards the continued operation and maintenance of the Food for Us mobile application. The willingness to go a step ahead in funding and supporting the functions of the mobile app was evident. The group of Experts and part of the Consortium team were willing to contribute to human resources capacity and consultancy-based inputs, with only the farmers willing to financially support the operations of the mobile app. However, it is difficult to rely on contributions to

sustain the mobile application. Hence, the need for the development of suitable financial streams, to result in a self-sustaining Food for Us mobile application.

The study found that the fluidity in the key stakeholders' profiles and roles is what makes it difficult to rely on contributions to sustain the mobile application. This is another reason to find suitable financial streams. These can be in the form of monthly payments or fundraising activities, but these are not enough on their own. In essence, the study findings and insights so far have shown how important financial sustenance is as a social enterprise element in the designing and development of a sustainable social business model, and critical in the context of the Food for Us mobile application.

The second critically important element that the study identified is social inclusion. The study findings show that there are a number of key beneficiaries who have been excluded in the past from using the Food for Us mobile app for various reasons that go beyond financial capacity. These include bakkie sellers – those "*who sell vegetables from their bakkies"*; the ordinary people; commercial farmers; small scale and backyard farmers; informal traders; and other Users (farmers and buyers). Some of these key stakeholders could have been financially excluded, but not all of them, and it was envisaged that the exclusion might be on two fronts: either due to lack of knowledge, or low subscription capacity. The study also found a lack of diversity on the functions provided by the mobile application as another form of exclusion. Including subscriptions, registration and advertisement/commission portals on the Food for Us mobile app could result in income generation in the future. The issue of multi-level subscriptions for users as well as advertising revenue should be considered as strong income streams. A major highlight of lessons drawn from the study was the need to increase access by the public to making use of the Food for Us mobile app, and integrate income-generating streams for the app while remaining affordable and becoming diversifiable. That way the app can be inclusive financially, geographically accessible and diverse in functionality. What also emerges from the study is the need to diversify the commodities beyond just fresh produce, and the need to increase accessibility to the app and be more inclusive in the use and navigation of the Food for Us mobile application.

5.4 Important elements of a sustainable social business model using the Business Model Canvas

To inform the design of a sustainable social business model for the Food for Us mobile application, a determination of the key elements was done using the nine elements of the Business Model Canvas of Osterwalder and Pigneur (2010), discussed in Chapter 2. Drawing on the analysis presented in Chapter 4, the study findings point to the following:

5.4.1 Cost structure

As reported in Chapter 4 in more detail, there is need for cost structures to sustain the operations of Food for Us mobile application namely, internet data costs, perceived additional functions and operations, mobile app hosting and Human Resource Management (HRM) related costs. The cost structures are important in determining what income generation streams and for what purposes. Among other cost structures identified there was an agreement about buying app hosting rights from the third party, which was deemed expensive initially but cheaper in the long run. One way to lessen costs further was by training local farmers to manage and maintain the operations and functions on the Food for Us mobile application. This sounds like a good long-term investment which will help in the reduction of cost structures on the mobile application. What came out clearly in the study findings was the need to reduce cost structures on the Food for Us mobile application to keep the mobile application financially affordable and sustainable. Cost structure management is therefore critical when considering a sustainable social business model for the Food for Us mobile application. Two major cost structure management strategies can be implemented namely, blacklisting of bad business, and adopting the "*willing buy, willing sell policy*". Overall, the study showed how customer structure as an element in the Business Model Canvas is critical to consider in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.2 Value proposition

Understanding the current value propositions associated with the Food for Us mobile application was important when envisioning ways to improve and make it sustainable, as was revealed in Chapter 4. The data shared in Chapter 4 offers ideas on how to enhance or improve the current value propositions and make the mobile application sustainable. The study shows that the Food for Us mobile application has a wide range of value propositions

depending on stakeholder salience and role. The key stakeholders benefited in various ways, from market opportunities (easy, cheap, and quick access to markets) to knowledge/information on local food markets/economies. The Food for Us mobile application also provides convenience, and saves time and financial resources on market research and other search-related activities. The study also revealed that the mobile application promotes reduction in food waste through enculturing of sustainable or responsible food consumption and reproduction patterns. In addition, the study found that the Food for Us mobile application facilitates networking, research and innovative opportunities to various interacting stakeholders. The study provides another dimension on value proposition in real time impact and how value proposition is an important business model element to consider in the designing and development of a sustainable social business model for the Food for Us mobile application.

In essence, the study reveals the importance of diverse value propositions to varying stakeholders. Additional functionalities such as adding price tags/functions on products, feedback functions (on quality of service and product), feedback portals (chat feature), transaction rating, inclusion of a payment portal, and adding advertisement space, among others, are important ways to make the mobile application user friendly, diversifiable and income generative, at the same time being responsive to the stakeholders' needs. Another strong value proposition highlighted in this study is that the Food for Us mobile application can be thought of as an instrument or tool to raise environmental awareness and protect the environment from unjust food consumption and production patterns through minimising food waste. A caution to be aware of is that not all the add-ons mentioned in this study aid financial sustainability but may (pivot) improve the functionality and user friendliness of the Food for Us mobile application.

The study also highlights the need for value propositions in ethical ways. The study reveals the need to consider ethical issues among the proposed additional functions to make the Food for Us mobile application ethically acceptable. The ethical value propositions highlighted include accessibility (language); inclusion of disabilities (audio or voice notes for sight related difficulties or elderly challenges), participant protection/anonymity; online security (from fraudster or online abusers); and, lastly, inclusion of foreign participants (by including passport details onto the registration process). The study findings highlight the need to pay

particular attention to users' information security and confidentiality, and anonymous feedback services in the designing and developing of a sustainable social business model for the Food for Us mobile application. There is no doubt that if the proposed highlighted value propositions are to be well integrated, they increase users' security, confidence, and more participation on the Food for Us mobile application.

In summation: As much as value is demanded from the operations of the Food for Us mobile application, value propositions must be understood in the context of diverse stakeholder roles and salience statuses. The prime value proposition to consider in the development and designing of a sustainable social mobile application is risk reduction. This can be offered by avoiding fraudulent activities or any form of harm to the participants on the mobile application. This can be further achieved through verified registration processes. In addition, customisation is another value proposition that the mobile app developer should offer to the diverse stakeholders and this can be in the form of added functions and features on the mobile application, but confidentiality, security and anonymity must always be offered at the same time, making the mobile application socially inclusive, accessible, acceptable, and financially affordable at all times. Lastly, the Food for Us mobile application should increase its value proposition by enhanced convenience. This can be achieved through ease of accessibility anytime and anywhere so as to retain customers in the long run. The study showed how value proposition as an element in the Business Model Canvas is important to consider in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.3 Key activities

As indicated in Chapters 1 and 4, the need to be financially sustainable and to develop financial streams for the Food for Us mobile application provided the impetus for this study, hence, there was a need to identify and discuss the proposed key activities to sustain the above-mentioned goals. As shown in Chapter 4, the study identified the following as the key activities to be included in the designing of a sustainable social mobile application: income generative streams (commission payment/point discount system; subscriptions and advertisements); noticeboard; web application; app banking services/online payment portal; diversification; registration; feedback portal; and local food systems surveys. It can be argued that there is a fine line between key activities and value propositions, but it is the former that

make it possible to achieve the latter. It is, therefore, important to realise the synergies in the value propositions and the key activities when designing and developing a sustainable social business model for Food for Us mobile application. This shows how key activities as a business model element is critical in the designing and development of a sustainable social business model for the Food for Us mobile application. It is important to mention that there was a high assumption that came out of this study that, by adding more functions and key activities on the Food for Us mobile application, it would make this mobile application diverse, lure more users and make it possible to generate enough funding to cover the operational costs of Food for Us mobile application. But this may not always be the case.

In addition, the study shows the need for quality control structures to address two of the most important aspects namely, information security and confidentiality, as well as safe feedback. The understanding here is that if there is clear user information, confidentiality guidelines and safeguarding protocols, along with a clear line of feedback, the Food for Us mobile application is likely to be responsive. Product and service quality are maintained and there is continued social learning via the Food for Us mobile application. In conclusion, the study showed how key activities as elements in the Business Model Canvas is important to consider in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.4 Customer segment

As revealed in Chapter 4, a revelation that came out strongly in this study is that a deep understanding of the cost structures, value propositions, and key activities was important in determining the customer segments of the Food for Us mobile application. This understanding is important because the customer segment describes the stakeholders who make the mobile application viable and sustainable. In this study two broad customer segments were identified namely, the users of the Food for Us mobile application and the consumers of the farm produce. One more thing that came out is that a deeper understanding of the customer segments prevents social and financial exclusion of stakeholders in the context of Food for Us mobile application.

In this study it was important to consider customer segments both current and excluded as it helps in the planning of the key activities, value propositions, cost structures and revenue

streams to design and develop a sustainable social business model for Food for Us mobile application. Secondly, it is important because it allows the inclusion of all stakeholders, making the social enterprise diverse and inclusive. The study also highlights the importance of retaining customer segments. Three major innovation structures namely, socially acceptable, accessible, and user friendly were noted to retain customer segments. Four key structures/activities were also identified, that is, the addition of voice narrations/voice notes, quality graphics and feedback structures, and these were reported to make the Food for Us mobile application more interactive and user friendly. Overall, the study shows how customer segments as a key element in the Business Model Canvas is critical to consider in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.5 Revenue streams

As reported in Chapter 4, three major revenue streams were identified for Food for Us mobile application namely, contributions, subscriptions and commissions, as well as fundraising, adoption by other enterprises and government funding. The reasoning is that generating revenues from commissions on advertisements, donations and subscriptions should sustain the operation costs and make the Food for Us mobile application financially sustainable and socially inclusive. There is a need to understand that, as argued earlier in this chapter, there is a thin line between value proposition, key activities, revenue streams and innovation structures to maintain customer segments. As argued in the beginning of this chapter the main goal of a sustainable social enterprise model is to make a profit, but at the same time maintaining social inclusion, financial affordability and sustainability, as well as being socially accessible and acceptable. Hence, most key activities, value propositions, and innovations for customer segments provides the necessary revenue streams that are needed to make the Food for Us mobile application user friendly, accessible, socially inclusive and financially sustainable. Overall, revenue streams proved a critical element in the Business Model Canvas to be considered in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.6 Customer relations

As reported in more detail in Chapter 4, the study highlights four major ways in which the Food for Us mobile application can be improved to enhance customer relations namely, integration of knowledge dissemination and sharing through workshops, training, and peer

training opportunities; feedbacks; interactiveness and accessibility. The study realised that the mobile application is an important information dissemination tool and can facilitate transactions, hence feedback on the information and transactions is important. Furthermore, the feedback between the users and/to the mobile application developers is critical in enhancing customer relations on the Food for Us mobile application. In the light of customer relations, the study realised a few things namely, the importance of feedback as a tool for continued learning and the importance of information verification and anonymity to protect user confidentiality and keep customer relations integral. Added to that the study realised the need to protect users' biographical data, and possibly through security encryptions and restricted access to the database. The study understood that if the users' biographical data is secured, anonymity and confidentiality are high, and feedback becomes positive towards continued learning and product/service improvement, and customer relations are maintained positively. In essence, customer relations proved to be one of the important elements in the Business Model Canvas to consider in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.4.7 Channels

According to Morkunas, Paschen and Boon (2019) channels in a business model refer to ways in which purchases and payments will be done. But, as shown in Chapter 4, this study revealed that channels reach beyond purchases and payments (financial channels) and include communication channels as well. The data shared in Chapter 4 shows how information security and confidentiality holds an important role in communication channels when designing a sustainable social business model. An important observation from this study is how feedback was shown to play a critical role in the continued social learning processes and in improving the products and services rendered via the Food for Us mobile application. This serves well the assumption held in this study that communication channels on Food for Us mobile application enable the necessary feedbacks and innovations.

However, communication channels in themselves are not enough; there is also need for concrete communication structures that hold the whole premise together, as revealed in Chapter 4. The study highlights that the communication structures that can be put in place along with information security and confidentiality are central to the success of the app. Also

to be noted is that communication channels can attract more and repeated users thus making the Food for Us mobile application more viable and versatile in the marketing business. The other important channel is safe payment (financial channels). The findings shared in Chapter 4 show that integrating a mobile banking app or online payment mode (i.e., EFT, Paypal, Payfast, Debit or Credit Card) onto the Food for Us mobile application could provide a safe transaction payment channel. This can then boost users' confidence and security and allow easy record keeping for monitoring and evaluation purposes. Overall, the study realised two major strategies that can enhance customer confidence to transact or want to know more about the product on the Food for Us mobile application. These are feedback protocols (i.e., product/service rating systems and testimonial systems), and security features (i.e., online payment portals, registration vetting and verification and anti-fraud security features). The findings revealed that customer confidence is one of the important aspects to consider in designing and developing a sustainable social business model for Food for Us mobile application. In essence, the study has shown how important channels are as an element in the Business Model Canvas when designing and developing a sustainable social business model for the Food for Us mobile application.

5.4.8 Key resources

As revealed in Chapter 4, the study has identified the two important considerations of intellectual property rights and Human Resources Management (HRM) to make the Food for Us mobile application cost effective. The study has shown that buying the ownership and hosting rights or opening up the Food for Us mobile application for adoption by a government department (as with the case of '*mom connect*') or tertiary institute can make the mobile application become more sustainable. But careful thought must be given to this question of adoption since this could lead into the same situation that the Food for Us mobile application is currently stuck in, after running out of funding (i.e., the very problem that led to this study). As discussed earlier, buying the intellectual property rights and web hosting could be a worthy investment and may prove to be more financially sustainable in the long run. At the same time, the training of a few individuals in actual mobile app management skills, including the adding and removing of applications on the Food for Us mobile application, would lessen HRM related costs. The study has shown how the key resources in the Food for Us mobile application can be made more cost effective and how the mobile application can become self-

sustaining. In essence, the study has shown why achieving cost effectiveness in the key resources is an important aspect to consider in the designing and developing of a sustainable social business model for the Food for US mobile application. It also shows how important key resources are as an aspect of the Business Model Canvas and in the designing and developing of a sustainable social business model for Food for Us mobile application.

5.5 A prototype social enterprise business model for the Food for Us mobile application

As shown across Chapter 4 and in the summative analysis above, this study has generated important knowledge on the multiple dimensions that need to be considered in co-designing a social enterprise business model. These findings are worth sharing with the full spectrum of stakeholders and participants who were involved in and who contributed to the co-designing of this business model. As can be seen from Chapter 4, besides the participatory workshops, the careful analysis of the contributions was a vital part of the design of the business model, as was the summative analysis that drew on social enterprise theory as well as business model theory, which was combined in the construction of a business model for the Food for Us mobile application via this in-depth case study research. What was of interest in doing this, was that the case has its particular features and this influences the design of the social enterprise business model, in other words the generalised business model canvas needs to be very carefully contextualised for the specific demands of the social enterprise; in this case it was the Food for Us mobile application.

To synthesise this work, the researcher developed a conceptual framework for the sustainable enterprise business model (see Figure 5.2 below) which is then articulated into the business model canvas of Osterwalder and Pigneur (2010) (see Table 5.1 below). This offers a summative analysis in a form that can be shared with the programme stakeholders, and potentially also be used by them for further testing.

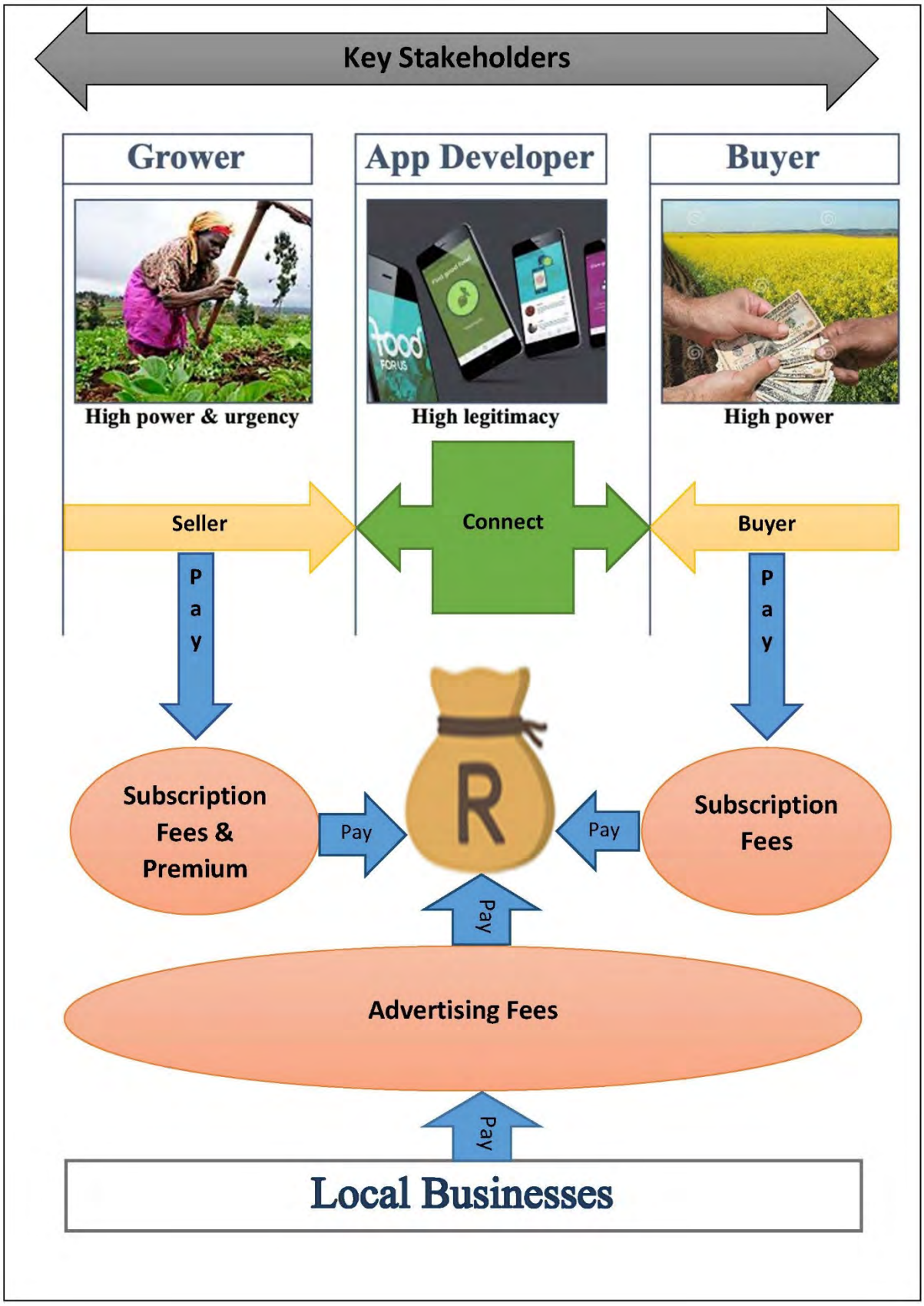

Figure 5.2: Diagrammatical representation of the proposed business model

The model and prototype (see Figure 5.1 and Table 5.1) developed from the study findings, however, has not been tested to note strengths and weaknesses as this is beyond the scope of this study. The business model for the Food for Us mobile application was adapted from the Business Model Canvas (Osterwalder & Pigneur, 2010: 226), drawing on sustainable enterprise development dimensions as presented in Table 5.1 below.

Table 5.1: Social Enterprise Business Model for Food for Us mobile application

<table>
<tr>
<td rowspan="2">Key Partners

• Primary users (farmers and buyers)
• Consortium (app developers)
• Experts (Sustainable Education Partners; Business Modelling and Tech Transfer Experts; the Social Innovator, the Funders and the Researchers in the Sustainable Food systems and Local Food Economies)
• Government departments (DRDAR, DWYPD, DTI)
• Intermediaries (LED Offices)
• Schools feeding schemes</td>
<td>Key Activities

<u>Problem solving:</u>
Develop new app features relevant to the needs of sellers and buyers
<u>Network:</u>
Run the app all the time including software updates</td>
<td rowspan="2">Value Proposition

<u>Risk reduction:</u>
Verified app users using IDs etc. to avoid fraud and harm
<u>Customisation:</u>
Added app features that cater for needs of the users
<u>Convenience:</u>
Accessible at any time, anywhere, socially inclusive (language & voice notes)
<u>Pricing:</u>
Low cost compared to other e-business apps; pay for subscription or advertising only; no charges on purchases, financial affordability and self-sustenance
<u>Feedback:</u>
Add feedback features (Q&A section, chat portal, email us portal, sale/transaction ratings, weekly ratings on good business)
<u>Safe payment portal</u></td>
<td>Customer Relationships

<u>Self-service:</u>
User friendly app features for both sellers and buyers
<u>Co-creation:</u>
App developer invites reviews from users for change
<u>Personal assistance:</u>
Users can contact the app developer for technical support
<u>Seller-Buyer Relationship:</u>
Reduce risk and uncertainty through app features that allow sellers and buyers to see each other’s information through profiles, etc.</td>
<td rowspan="2">Customer Segments

<u>Niche Market:</u>
- Food growers who see the need to minimise food waste losses
- Buyers looking to source local produce while supporting local food economies</td>
</tr>
<tr>
<td>Key Resources

<u>Human:</u> app developers
<u>Financial:</u> cash to pay for app developers
<u>Intellectual:</u> customer databases of sellers and buyers</td>
<td>Channels
<u>Communication channels</u>
Make information secure and confidential
Make feedback channels more positive & encouraging
Enhance user to user feedback channels and user to app developers
<u>Financial channels</u>
Ensure safe payment on the mobile application
Trace and monitor financial transaction on the mobile application
Verification of users
Limit scam or fraud risk
<u>Web sales (direct):</u>
User friendly interface on mobile app
<u>Collection point (indirect):</u></td>
</tr>
</table>

		Add safe payment options (EFT, Paypal, Payfast, Debit or Credit card). <u>Social learning</u> Continued social learning process, sustainable living practices, lessen food waste	Establish collection points: one in EC, one in WC; can be on car park, near government building, etc.	
Cost Structure Key costs: developer fees, hosting and maintenance, monitoring and controls <u>*Cost-driven:*</u> maintain the cost of running and improving the app as low as possible; this could be covered by fees charged to app users such as sellers and buyers			**Revenue Streams** <u>*Subscription fees:*</u> recurring revenue; buyers charged monthly/quarterly/yearly <u>*Advertising:*</u> transaction revenue; local businesses charged for advertising on the app <u>*Premium Listing:*</u> Sellers may have the option of premium listing where their listing is pinned to the top and they may upload pictures and specific details	

5.6 Conclusion

This chapter discussed and consolidated the key study findings. Key insights gained from the data presentation and analysis in Chapter 4 were synthesised, and considered as the basis for a prototype business canvas model for the Food for Us mobile application which, via this research, sought to address the challenges of short-term funding and lack of an appropriate business model for social enterprises that reflect an interest in social, economic and ecological dimensions. In essence, the chapter brings together the social enterprise dynamics with business canvas model planning and provides a better working plan to understand and improve the Food for Us mobile application into a more financially sustainable, socially accepted, and socially inclusive mobile application. The anticipation is that if all the offerings of this study are fully understood, embraced and integrated, a very powerful tool in the form of Food for Us mobile application can be advanced to contribute to creating a sustainable environment by decreasing food waste and encouraging sustainable consumption habits, among others, while also offering a market transformation tool for smallholder farmers.

Chapter 6: Summary of Findings, Conclusions, Recommendations

6.1 Introduction

The chapter presents a short final summary of study findings, offers some concluding remarks and makes recommendations towards a sustainable business model and future research.

6.2 Research problem and questions

It is important to remind the readers that the absence of business model for Food for Us mobile application has affected the sustainability of the project, hence, there was a need to design/develop a business model for Food for Us mobile application. The study aimed to fulfil the following objectives:

1. Identify key stakeholders in the context of the Food for Us mobile application using the Salience model.
2. Determine key social enterprise elements in Food for Us project to inform a business model for sustaining the operation of the Food for Us mobile application.
3. Develop a viable business model that can sustain the operation of the Food for Us mobile application through brainstorming in a series of workshops.

The key findings of the study shall be presented and discussed below.

6.3 Key findings

<u>The key stakeholders in the context of the Food for Us mobile application using the Salience model.</u>

There were three key primary stakeholders of the Food for Us mobile application namely, the Users (farmers and buyers), mobile app developers (from the Consortium), and the Experts. These key primary stakeholders possess varying saliences (Mitchell et al., 1997). Of these three key primary stakeholders, the Users namely, the farmers and buyers, despite belonging to the same category, possess differing salience. The farmers possess moderate salience. They have less legitimacy because of their perceived desire to profit and high level of urgency since their produce is sensitive to seasons and has a short shelf lifespan, but lack the power to fulfil

their will, thus making them dependent stakeholders. They depend on market demand and, more recently, on the functioning of the Food for Us mobile app.

The buyers have moderate salience. They possess high power, low level urgency and lack legitimacy, making them dangerous stakeholders (Mitchell et al., 1997). The buyers are dangerous stakeholders because of their high coercive power and low urgency. In essence, their purchasing power positions them with the advantage of being able to compel the farmers to sell at buyers' desired prices and they have the opportunity to choose the kind of produce quality they would like. At the same time, they don't have urgency because of their insensitivity to farmers' difficulties and could be multiple business players, meaning they can instantly switch to alternative products, sources, or business lines.

The second key stakeholder group for Food for Us mobile app is the app developers (part of the Consortium team). After being contracted to develop and host the Food for Us mobile application the mobile app developers possess moderate salience. They have less power and lack urgency in the purchase cycle of Food for Us mobile application as they legally host the Food for Us mobile app, but are not sensitive to time or purchase requirements and do not necessarily do things at their own instigation. However, the mobile app developers possess high legitimacy in the Food for Us mobile application as they are a registered company with a profit goal and are the rightful web host, with a legally binding mandate making them a dominant stakeholder.

Lastly, the third key stakeholder group of the Food for Us mobile application are the Experts. The Experts play varying roles in the Food for Us mobile application and are moderate Salience stakeholders. They possess the funds, knowledge and expertise, which gives them the power and legitimacy in the Food for Us mobile application (although legally limited) but they do not have the urgency to see the mobile application functional. This makes them a dominant stakeholder.

<u>The critical social enterprise elements in Food for Us project informing a business model for sustaining the operation of the Food for Us mobile application</u>

The study found that sustainability and social inclusion are the critical social enterprise elements to consider in developing a sustainable social business model for Food for Us mobile application. The study revealed that there need to be key activities and revenue streams

included on the Food for Us mobile app to make it more sustainable. The primary goal is not profit but to increase social impact by attracting more users of Food for Us mobile application and reducing food waste in the country. Advertisements and registrations fees were reported as the two main revenue streams perceived to be necessary to generate the needed income to sustain the operations of Food for Us mobile application. Standard and premium listing options for advertisements can be another option. The standard listing would be offered free of charge and the farmers would advertise their commodities without pictures or other specifications. On the premium listing farmers would be able to upload a certain number of photos to advertise their commodities, and other functionalities and features could be added such as pricing, geolocation, quality rating, quantity specifications and automated payment systems. The farmers and businesses would also be able to advertise on landing page and pop-ups for an extra charge.

Registration fees would be another important income stream and while the farmers would be registered for free to increase usage, buyers would pay registration and/or subscription fees which could be monthly, quarterly or annual. A payment method would be integrated and linked to the developer and Food for Us mobile application so that the buyers can easily pay as a way of validation.

Secondly, the study revealed social inclusion as a critical social enterprise element necessary in the development of a sustainable business model for Food for Us mobile. The study found a need to include the previously excluded farmers and buyers in the Food for Us mobile application. For example, the commercial farmers, informal traders, intermediaries (LED) and other government departments such as Department of youths, National government (DTI) and these stakeholders have varying salience (see Table 4.36) but important and must be included as key stakeholders of Food for Us mobile application. Language is another form of social inclusion tool that must be integrated in the functions of Food for Us mobile application to make it social inclusive. Indigenous languages like isiXhosa, Afrikaans must be integrated as part of the medium of communications on Food for Us mobile application.

A viable business model for Food for Us mobile application

The study found that a viable business mobile application should create strategic links between the users and shorten the time spent in doing business, while also considering

safety. It should maintain users' relations, allow proper commodity listings including photos, pricing, quality rating, shelf life, geolocation and allow e-transacting on the mobile App with verified users. Secondly, be inclusive of all stakeholders including the previous excluded. The mobile application should be cognisant of diversity and the elderly. Therefore, medium of communication, of mobile application interface should be sensitive to issues such as language, age, and gender. Thirdly, a viable business mobile application should be diversifiable, not limited to one commodity but, should be accommodative of other products and by-products. Users should not be limited to a single business line but creative to include other functions such as e-transaction, geolocation, and virtue markets. Fourthly, a viable business mobile application should be self-sustaining. There should be revenue streams and key activities designed to generate income to sustain the functions and operations of the mobile application. Subscription and advertisement fees could be two key income generating activities for the Food for Us mobile application (see Figure 5.2).

The study further found that, for a business model to be sustainable, there needs to be key partners. A partnership with the mobile App developers and other stakeholders such as Lead Associates (the business consultancy) could be beneficial to Food for Us mobile application. In addition, there must be key activities to generate enough income to support and sustain the operations and functions of the Food for Us mobile application. The key revenue generation activities could be in form of registration fees, subscription fees (buyers) and advertisement fees (farmers and other businesses).

The study also found out that key resources are essential in developing a viable business model for Food for Us mobile application. There is need for a resource person who is multifaceted by nature, who would handle and solve internal issues of the Food for Us mobile application. There is also a need to build appropriate intellectual resource. There should be enough capital at the initial stages of operations of the Food for Us mobile application until the finances stabilises through adverts, subscriptions and registrations.

In addition there is need for value proposition if the Food for Us mobile application model is to be sustainable. Risk reduction is the first value proposition the Food for Us mobile application has to offer to reduce fraud and harm to users. This can be achieved through member verification in the registration phase. Customization is the second value proposition the Food for Us mobile application has to offer. This can be achieved through extra or

additional feedback features such as, liking of users. Convenience is the third value proposition the Food for Us mobile application can offer. This can be achieved by enhancing accessibility, anytime and anywhere and low data usage. Risk reduction, customisation and convenience can increase viability of the Food for us mobile application.

Customer relations is one of the elements to consider in developing a viable business model for the Food for Us mobile application. Farmer-buyers relationship is very critical for prolonged and successful operations of Food for Us mobile applications. There is a need to co-create content and features of the business mobile application if it were to be successful.

There is need for proper channels if a business mobile application is to be viable. Channels refers to ways in which the customers are communicated with or reached (Osterwalder & Pigneur, 2010). There is a possibility for e-transactions on Food for Us mobile application although, the nature of commodities might want the buyers to meet with the farmers for quality check and verification. The channels must not to be limited to financial channels but to also include communication channels. Hence, feedback channels are important to consider in designing a viable social business model for Food for Us mobile application.

Customer segments is another important element to include in a developing a social viable business model for the Food for Us mobile application. Customer segments can help in finding market niches for both users. Of importance is to understand that customer needs vary and it has to be incorporated in the designing and development of a viable social business model for the Food for Us mobile application.

Cost structure is another important element to consider in developing a viable social business model for the Food for Us mobile application. Reduction in running costs is a potential way to make the Food for Us mobile application more sustainable.

6.4 Concluding insights

Based on the study findings and insights summarised above, this study concludes the following:

Key stakeholders in the Food for Us mobile application

The study concludes that there are three key primary stakeholders of the Food for Us mobile application namely, the Users (farmers and buyers), mobile App developers (from the

Consortium) and the Experts. These three key primary stakeholders possess varying salience. The first group of users namely, the farmers were concluded to have moderate salience and be dependent stakeholders (sensitive to seasons, shelf lifespan of their produce, and market demand). The second group of users, the buyers were concluded to have moderate salience and be dangerous stakeholders (sensitive to produce quality and quantity, and with high bargaining power). The study concludes that the continuation and success of the Food for Us mobile app is dependent on these primary users whose satisfaction is critical for the afore-mentioned reasons.

The study further concludes that the app developers (part of the Consortium team) are critical key stakeholders for the continued use and success of the Food for Us mobile app. The app developers were concluded to have moderate salience but be dominant stakeholders (owning the rights to the app and being a registered profit-oriented company). They host the Food for Us mobile application and have a legally binding mandate. Lastly, the study concludes that the Experts are of moderate salience but dominant stakeholders in the Food for Us mobile application. They possess the funds, knowledge and expertise, although they may be legally limited.

Critical social enterprise elements to consider in a sustainable social business model

The study concludes that sustainability and social inclusion are the critical social enterprise elements to consider when developing a sustainable social business model for the Food for Us mobile application.

For a sustainable social business model to be financially viable, it must have key activities, revenue streams (advertisement and registrations fees), extra functionalities (geolocation, quality ratings and automated payment system), and be diversifiable (e-waste and solid waste), to increase the revenue streams to support its continuing operations.

The study further concludes that for a sustainable social business model to be socially inclusive, it must include the previously excluded stakeholders (commercial farmers, informal traders, intermediaries, and government departments), and integrate indigenous languages (isiXhosa, Afrikaans) as part of the instruction medium on the Food for Us mobile app.

A viable business model for Food for Us mobile application

In summary, the study shows that a viable business model for Food for Us mobile application should be considerate of its primary stakeholders' needs and prioritise value creation to maximise its social impact. This can be achieved through creating strategic links between the users and incorporating value additions such as enhanced commodity listings, including photos, pricing, quality rating, shelf life and geolocation, as well as allowing e-transacting on the mobile app with verified and paying users. Secondly, the study concludes that a viable business model should be inclusive of all stakeholders, be cognisant of diversity and be sensitive to instruction medium, especially the language. Thirdly, the study concludes that the business model should be diversifiable, accommodative, and self-sustaining.

6.5 Recommendations

Based on the study findings and conclusions drawn in this study the following recommendations are made:

- Sustainable innovative business requires substantive consultation with multiple stakeholders in the society.

This study proved that all stakeholders' views and contributions are equally important in the designing and developing of a sustainable social business model for a business mobile application, as was the case with the Food for Us mobile application.

In the case of Food for Us mobile application, the study recommends that the sustainable social business model prototype should include the following:

- Key partners:

There is a need to partner with stakeholders such as intermediaries, e.g LED offices and school feeding schemes that can provide the essential level of produce demand needed to sustain the operations of the Food for Us mobile application through registration fees. The Food for Us mobile application can also partner with the App developers to less web hosting and maintenance costs.

- Key activities:

There is a need to diversify and integrate key activities on the Food for Us mobile application to generate enough income to support and sustain the operations and functions of the mobile

app. Such activities may not be limited to farm produce trading but include other commodities such as scrap metal, recyclable materials, e-waste, etc. There is also need to include extra functionalities (geolocation, quality ratings and automated payment system) to make the Food for Us mobile application user friendly and attractive to many users.

- Revenue streams:

There is need for multiple revenue streams in the form of registration fees, subscription fees (buyers) and advertisement fees (farmers and other businesses) to generate enough revenue to maintain and support the continued operations of the Food for Us mobile application.

- Key resources:

There is need to understand the key resources for the Food for Us mobile application. Understanding and putting measures in place to lessen costs in the form of human resources, financial resources and intellectual resources would increase the continued operations of the Food for Us mobile application. In this regard, there is need to train internal stakeholders like farmers how to maintain the operations and functions of the Food for Us mobile application. This can reduce both human resources and intellectual resources costs.

- Value proposition:

The underpinning purpose of the Food for Us mobile application is to create value for its users. Hence, risk reduction, customisation through value-added features and creating convenience through socially inclusive accessibility are some of the ways Food for Us mobile application can enhance its value propositions. In this way more users will be attracted to and feel safe to transact on the Food for Us mobile application and generate revenues to sustain the mobile app's continued operations.

- Customer relations:

Enhancing customer relations on the Food for Us mobile app can increase the prolonged and successful operation of the Food for Us mobile app. In this case every relationship matters; the consideration should be to avoid causing harm while at the same time encouraging participants to improve in both communication skills and product/service quality. Integrating feedback techniques that maintain anonymity and don't offend other stakeholders should remain a top priority. There is need to consider service or product rating systems, including

the use of emojis and/or rating scales to give feedback on transactions, product quality and service quality.

- Channels:

There is need for proper channels on the Food for Us mobile app to attract more users and for the users to be able to transact safely. These channels should not be limited to financial channels but include communication channels as well. Hence, including a pay portal and feedback system on the Food for Us app will not only increase the value proposition and key activities but will also increase confidence, security and user-friendliness of the mobile app. This has potential to increase users for the app and generate enough revenue for its continued operation.

- Customer Segments:

There is need to identify the customer segments for the Food for Us mobile app and create a niche market. This niche market would comprise of farmers/growers looking to minimise food waste and losses by selling their surplus locally, and the buyers who are looking to buy local fresh produce, willing to buy surplus while supporting local food economies. If the customer segments are identified and their needs are satisfied then there is guaranteed continued use of the Food for Us mobile app and generation of the revenue needed to sustain the operations of the app.

- Cost Structure:

There is need to identify the key cost structures in the Food for Us mobile application, and to find ways to lessen the human resource costs in the form of app developers' time, app hosting fees, ongoing maintenance and updates. One way to do so is by training the local farmers to maintain and manage the Food for Us mobile app with regard to maintenance and updates. Another way is to buy the intellectual rights for hosting the Food for Us mobile app from the app developers. It's understandable that this may initially be very expensive but cheaper in the long run.

6.6 Recommendation for future studies

- This study aimed at developing a viable business model that can sustain the operation of the Food for Us mobile application. However, because of time and other circumstances beyond control the testing of the prototype was never done, hence,

there is need to test the prototype and improve it for further use in the field and beyond.

- This study was conducted in the Eastern and Western Cape, piloting with a few users (farmers and buyers) sponsored with data among other things. There is need to roll out the same prototype with more participants from different walks of life and use the comparative findings to develop a more inclusive prototype accessible to larger audience.

6.7 Limitations of the study

This study was conducted in a case study design that puts emphasis on a particular case study, hence, random generalisation of the study findings or insights is discouraged (Yin, 2013). However, there is possibility for transferability of the study results to homogeneity contexts or settings for policy formulation, business model development, and monitoring and evaluation purposes (Mertens, 2007). Furthermore, due to the COVID-19 pandemic, the study could not host multiple iterations of the workshops, and there was a limitation to the reach of the study, as there could not be an invitation to participate made to a broad-spectrum audience beyond the stakeholders who were already involved in the Food for Us mobile app. However, this restriction allowed for enhanced in-depth analysis and member-checking for validation and reliability purposes. From a conceptual perspective, the study was designed to develop a sustainable social business model prototype. However, the prototype was never tested, hence the need for testing and further improvement of the prototype in the future.

6.8 Concluding statement

In conclusion, a sustainable social business model or prototype is necessary when developing a mobile application, as it was in the case of Food for Us mobile application. There are social enterprise elements to consider such as financial sustainability and social inclusion if the mobile application is to succeed. Stakeholder mapping is an important exercise as was learnt in this study, where it became apparent that every stakeholder is important and possesses varying salience. In-depth stakeholder mapping can further illustrate the key partners and customer segments important in the continued operations of the mobile application. The quest to enhance financial sustainability opens up an understanding of the importance of income streams, key activities and value propositions offered by the mobile app, while, the

need to remain socially inclusive brings forth questions around value propositions, accessibility, user friendliness and sensitivity towards stakeholder diversity and needs. Taken all together, these aspects hold a central logic in the designing and developing of the sustainable social business model for Food for Us mobile application. This study opens up an understanding of the social enterprise elements to consider in the designing of business mobile applications. It offers a solution to the Food for Us mobile application sustainability challenges in the form of a prototype which is ready for testing, and, if the desired results are achieved, this can enhance the much needed continued operations of the mobile application.

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Appendices

Appendix A: Consent Letter for Participants

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PARTICIPANT INFORMED CONSENT

INFORMED CONSENT DECLARATION
(Participant)

Project Title: Stakeholder engagement to inform a business model design for the 'Food for Us' project

Mrs Thato Tantsi from the Rhodes Business School, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to embark on business model design for the Food for Us App through stakeholder engagement with the users, prospective users and experts in the various fields within which the App operates.

2. Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.

3. By participating in this research project I will be contributing towards the longevity of the application, leading to increased market access for the small-scale farmers, and locally-sourced produce for the buyers. This has a societal benefit that goes beyond economic benefit, as if fosters enhanced local food economy, reduced food waste and carbon emissions savings from the locality of the food sources.

4. I will participate in the project by attending and participating individual and group interviews with the researcher and attending and participating in the iterative workshops that will be hosted by the researchers, as a member of the focus groups.

5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.

7. There are no risks associated with my participation in the project.

RHODES UNIVERSITY
Where leaders form

8. The researcher intends publishing the research results in the form of a Master of Business Administration Half Thesis. However, confidentiality and anonymity of records will be maintained and that my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.

9. I will receive feedback in the form of a presentation of the findings at a final workshop following the publishing of the thesis, regarding the results obtained during the study.

10. Any further questions that I might have concerning the research or my participation will be answered by Thato Tantsi of cell number 082 921 5870 and email address ittantsi@gmail.com.

11. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.

12. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

13. I consent to pictures, video and voice recording being done for the purposes of this study.

I, ... have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

....

Participants signature **Witness** **Date**

Rhodes University, Research Office, Ethics
Ethics Coordinator: ethics-commitee@ru.ac.za
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Appendix B: Workshop Guide for Users (F1)

Objective 1 (identify key stakeholders – Salient model)

Category: Key Stakeholders/Partners

1. Who are the key stakeholders in the context of "Food for Us" mobile application?

Themes:

2. On a scale of 1 being **Less** or 2 being **High,** how would you rate each key stakeholder's (**power**) influence to the F4us mobile application
3. On a scale of 1 being **Less** or 2 being **More,** how would you rate each key stakeholder's **legitimacy** to the F4us mobile application
4. On a rate of 1 being **Less** or 2 being **More,** how would you rate each key stakeholder's **urgency** to the F4us mobile application.

Objective 2 (determine key social enterprise elements)

Category: Social enterprise elements in building a sustainable business model for a F4us mobile application

Themes:

<u>Sustainability (self-sustaining) (category)</u>

-revenue streams (theme)

1. From your own perspective whom (which group) do you describe as the ultimate beneficiaries from the operations of Food for Us mobile application? (power & urgency)
2. As ……. do you see yourself as a key beneficiary?
3. If "Yes" do you think as key beneficiaries you should be the prime funders as well to the sustenance of the Food for Us mobile application? (urgency)
4. What contribution would you be willing to make towards the financial sustainability of the Food for Us mobile application?

a) Payments

i) As ……. how much would you be willing to pay every month to ensure the continuity of the operations of the F4Us mobile application? (legitimacy)

ii) In which format would you be willing to pay i.e.

- In the form of airtime
- through data
- through the money market
- EFT (legitimacy)

b) Fundraising

i) What fundraising initiatives are you willing to undertake for the sustainability of the Food for Us mobile application?

ii) How would you remit the funds realised from the fundraising initiatives?

c) Corporate social responsibility (CSR)

i) How willing is your organisation to adopt the operations of the application as a CSR?

5. Are there any groups of stakeholders that you view as key beneficiaries, but who, due to socio-economic status, would be unable to contribute as per question 4 above? If "Yes" please identify and propose how they may be accommodated. (high urgency but low power)

6. What other means can be used to generate money from the Food for Us mobile application to make it self-sustaining and less reliant on key partners? (Food for Us funding organisations)

-cost structure

7. What do you think are the key costs that would be incurred in sustaining the operations of the Food for Us mobile application?

-value propositions

8. What value does the Food for Us mobile application bring to you as a key stakeholder?

9. Would we like to maintain the existing value or add more functions and operations on the Food for Us mobile application to make it sustainable?

10. If you were to add more functions and operations (more value propositions) what would you add on the Food for Us mobile application to make it more sustainable? (legitimacy)

11. What cost sustainability structures would you put in place to support those new operations and functions on the Food for Us mobile application? (urgency & legitimacy)

12. What ethical considerations would you incorporate in designing the new operations and functions on the Food for Us mobile application to make it socially accepted and sustainable? (power & legitimacy)

-key activities

15. What other key activities would you add or remove from the current Food for Us mobile application to make it more sustainable?

Social inclusion

-customer segments

16. Who are the customers of Food for Us mobile application?

17. Are there any other community members or stakeholders who would benefit from the continued operations of the Food for Us mobile application who are currently excluded from the application?

18. What structures would you put in place to make the Food for Us mobile application more socially acceptable, accessible and user friendly?

-revenue streams

19. What other revenue streams could be used to make the Food for Us mobile application operational, while being socially inclusive?

-customer relationships

20. What can be done to make the Food for Us mobile application socially interactive?

21. What measures can be put in place to ensure data and information security of the customers?

22. How can customers give feedback, testimonials or recommendations on the product or services received through the Food for Us mobile application without offending other parties?

Diversifiable (others – limited)

-key activities

23. Which other activities would you wish to be included on the Food for Us mobile application to make the application more diverse?

24. What additional functionalities would you like to be added on the Food for Us mobile application to diversify the key activities?

-channels

25. What other communication channels can be incorporated into the Food for Us mobile application to feedback to the Software/App developers and customers?

26. What other decent communication structures can be included on the Food for Us mobile application to allow the customers and clients positive or negative feedback on a product, transaction or service? (could be a colour code rating).

27. What other financial tools and feedback structures should be incorporated on the Food for Us mobile application to facilitate safe payment channels?

Value addition

-value proposition

28. What other functionalities can be incorporated to add value to the Food for Us mobile application.

-key activities

29. What other functions or services can be incorporated to add value to the Food for Us mobile application.

Reactive

-key activities

30. What quality control structures can be put in place to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs?

31. How can the customers be confident of the products or transactions happening at the Food for Us mobile application?

32. What measures can be put in place to ensure cost recovery from a bad transaction?

-cost structure

33. What cost structures can be put in place such that there is fair costing on the products transacted on the Food for Us mobile application?

-resources

34. How can the key resources for the Food for Us mobile application be cost effective?

Appendix C: Workshop Guide for Consortium (C1) and Experts (X1)

Objective 1 (identify key stakeholders – Salient model)

Category: Key Stakeholders/Partners

1. Who are the key stakeholders in the context of "Food for Us" mobile application?

Themes:

2. On a scale of 1 being **Less** or 2 being **High**, how would you rate each key stakeholder's (**power**) influence to the F4us mobile application

3. On a scale of 1 being **Less** or 2 being **More**, how would you rate each key stakeholder's **legitimacy** to the F4us mobile application

4. On a rate of 1 being **Less** or 2 being **More**, how would you rate each key stakeholder's **urgency** to the F4us mobile application.

Objective 2 (determine key social enterprise elements)

Category: Social enterprise elements in building a sustainable business model for a F4us mobile application

Themes:

<u>Sustainability (self-sustaining) (category)</u>

-revenue streams (theme)

1. From your own perspective whom (which group) do you describe as the ultimate beneficiaries from the operations of Food for Us mobile application? (power & urgency)

2. As ……. do you see yourself as key beneficiary?

3. If "Yes" do you think as key beneficiaries you should be the prime funders as well to the sustenance of the Food for us mobile application? (urgency)

4. What contribution would you be willing to make towards the financial sustainability of the Food for Us mobile application?

a) payments

i) As …….. how much would you be willing to pay every month to ensure the continuity of the operations of the F4us mobile application? (legitimacy)

ii) In which format would you be willing to pay i.e.

- In the form of airtime

- through data
- through the money market
- EFT (legitimacy)

b) Fundraising

i) What fundraising initiatives are you willing to undertake for the sustainability of the Food for Us mobile application?

ii) How would you remit the funds realised from the fundraising initiatives?

c) Corporate social responsibility (CSR)

i) How willing is your organisation to adopt the operations of the application as a CSR?

5. Are there any groups of stakeholders that you view as key beneficiaries, but who, due to socio-economic status, would be unable to contribute as per question 4 above? If "Yes" please identify and propose how they may be accommodated. (high urgency but low power)

6. What other means can be used to generate money from the Food for Us mobile application to make it self-sustaining and less reliant on key partners? (Food for Us funding organisations)

-cost structure

7. What do you think are the key costs that would be incurred in sustaining the operations of the Food for Us mobile application?

-value propositions

8. What value does the Food for Us mobile application bring to you as a key stakeholder?

9. Would we like to maintain the existing value or add more functions and operations on the Food for Us mobile application to make it sustainable?

10. If you were to add more functions and operations (more value propositions) what would you add on the Food for Us mobile application to make it more sustainable? (legitimacy)

11. What cost sustainability structures would you put in place to support those new operations and functions on the Food for Us mobile application? (urgency & legitimacy)

12. What ethical considerations would you incorporate in designing the new operations and functions on the Food for Us mobile application to make it socially accepted and sustainable? (power & legitimacy)

-key activities

15. What other key activities would you add or remove from the current Food for Us mobile application to make it more sustainable?

Social inclusion

-customer segments

16. Who are the customers of Food for Us mobile application?

17. Are there any other community members or stakeholders who would benefit from the continued operations of the Food for Us mobile application who are currently excluded from the Application?

18. What structures would you put in place to make the Food for Us mobile application more socially acceptable, accessible and user friendly?

-revenue streams

19. What other revenue streams could be used to make the Food for Us mobile application operational, while being socially inclusive?

-customer relationships

20. What can be done to make the Food for Us mobile application socially interactive?

21. What measures can be put in place to ensure data and information security of the customers?

22. How can customers give feedback, testimonials or recommendations on the product or services received through the Food for Us mobile application without offending other parties?

Diversifiable (others – limited)

-key activities

23. Which other activities would you wish to be included on the Food for Us mobile application to make the application more diverse?

24. What additional functionalities would you like to be added on the Food for Us mobile application to diversify the key activities?

-channels

25. What other communication channels can be incorporated into the Food for Us mobile application to feedback to the Software/App developers and customers?

26. What other decent communication structures can be included on the Food for Us mobile application to allow the customers and clients positive or negative feedback on a product, transaction or service? (could be a colour code rating).

27. What other financial tools and feedback structures should be incorporated on the Food for Us mobile application to facilitate safe payment channels?

Value addition

-value proposition

28. What other functionalities can be incorporated to add value to the Food for Us mobile application.

-key activities

29. What other functions or services can be incorporated to add value to the Food for Us mobile application.

Reactive

-key activities

30. What quality control structures can be put in place to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs?

31. How can the customers be confident of the products or transactions happening on the Food for Us mobile application?

32. What measures can be put in place to ensure cost recovery from a bad transaction?

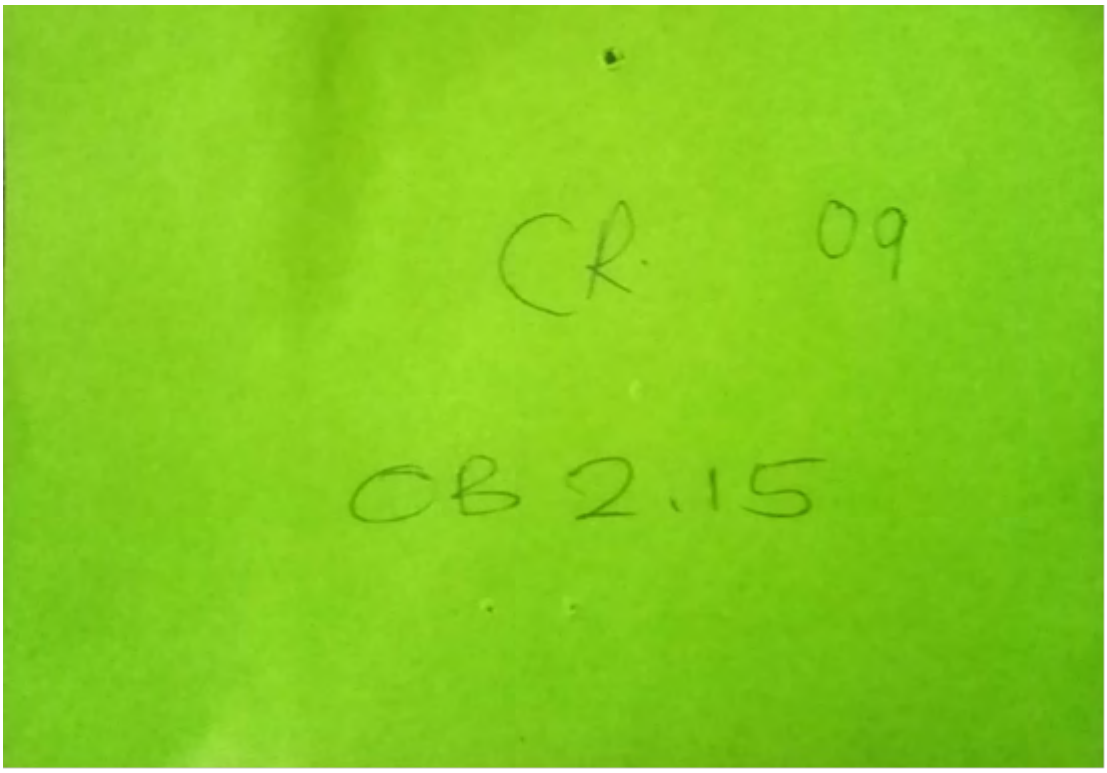
-cost structure

33. What cost structures can be put in place such that there is fair costing on the products transacted on the Food for Us mobile application?

-resources

34. How can the key resources for the Food for Us mobile application be cost effective?

Appendix D: Anonymity (colour-coded and coded paper card)



Appendix E: Analytical Memo 1: Users

Objective 1 (identify key stakeholders – Salient model)					
Category	**Evidence**	**Source**	**Ranking**	**Evidence**	**Source**
Key Stakeholders/Partners 1. Who are the key stakeholders in the context of "Food for Us" mobile application?	Farmers Government (DRDAR) Owners of the application Consortium Buyers	F1, F6 F2 F3 F4 F5	2. On a scale of 1 being **Less** or 2 being **High** how would you rate each key stakeholder's **Power** to the F4us mobile application	**1** 2	F1,F2, F6 F3, F4,F5
	Farmers Government (DRDAR) Owners of the application Consortium Buyers	F1, F6 F2 F3 F4	3. On a scale of 1 being **Less** or 2 being **More,** how would you rate each key stakeholder's **legitimacy** to the F4us mobile application	1 **2**	F2,F5 F1,F3, F4, F6

		F5			
	Farmers Government (DRDAR) Owners of the application Consortium Buyers	F1, F6 F2 F3 F4 F5	4. On a rate of 1 being **Less** or 2 being **More,** how would you rate each key stakeholder's **urgency** to the F4us mobile application.	**1** **2**	F3, F4 F1, F2, F5, F6
Objective 2: Category: Social enterprise elements in building a sustainable business model for a F4us mobile application.					
Category	**Evidence**				**Source**
1. From your own perspective whom (which group) do you describe as the ultimate beneficiaries from the operations of Food for Us mobile application? (power & urgency)	**<u>customer segment</u>** schools feeding schemes – the schools can now sauerkraut fresh vegetables directly from the farmers in the community buyers – the application has a geolocation system that helps buyers to locate the food suppliers without travelling in search buyers in rural areas I think the buyers are the main beneficiaries because they are able to find what they want to buy easily as such they save time and money <u>App developers</u> – these are the people who were paid to develop the application <u>Farmers</u> – because we need access to market before our vegetables become rotten and we would have to plough them back into the soil				F6 F8 F12 F1 F4 F14 F8

	As a <u>buyer</u>, yes, I am a key beneficiary. I am able to access the market right on my phone and that makes it convenient for my business		
2. As Farmers and Buyers do you see yourself as key beneficiaries?	**<u>Key activities</u>** Farmer and buyer – it allows me to sell my produce but also to buy the produce that I don't grow from my neighbours Yes – as a farmer, I have reduced costs related to market search Yes, as a buyer, I am a beneficiary because I can support my local community members instead of buying old vegetables from the shops As a farmer, yes. I can now sell most of my produce on time reducing on market losses		F7 F13 F19 F3
3. If "Yes" do you think as key beneficiaries you should be the prime funders as well to the sustenance of the Food for Us mobile application? (urgency) 4. What contribution would you be willing to make towards the financial sustainability of the Food for Us mobile application?	**<u>Revenue streams</u>** I don't think I can fund the application. I do my business and I count the costs. But if you tell me that funding the application will increase my profits then maybe I can consider it. Farmer – No, we are very poor and we only produce a few for sale. Most of the produce is for family consumption. So I don't see it as a possibility Farmer – Yes, as I profit from the system it can be possible. No, there is a donor paying for us. In fact the government must pay for us as they do with other applications like Mom Connect Farmer – as a small scale holder farmer it will be very difficult for me to afford funding something like this. farming is my only source of income and it is very tight **Sub-theme**		F5 F13 F2 F7 F1
	a) Payments i) As Farmers and Buyers how much would you be willing to pay every month to ensure the continuity of the operations of the F4us mobile application?	**<u>Evidence</u>** **<u>RVs</u>** I can't afford to pay Maybe R20/month R15/month R12/month R50/month Maybe a charge to my account after every successful sale. For example, like a commission to	F1 F7, F14 F13 F2 F17 F6

		the app. If no buyers, no contribution for that month. As a farmer, I think it is fair to deduct from what I would have sold on the app than pay in advance. What if I do not use the application, what will happen to my money? I think it will be good for us to contribute to this application as farmers association. We can make a monthly financial contribution from the membership fees that the farmers have already paid	F8 F20
	ii) In which format would you be willing to pay i.e. • Airtime • Data • Money market • EFT	<u>Airtime</u> <u>Data</u> <u>EFT</u>	F7, F2, F14 F13 F17
	b) Fundraising i) What fundraising initiatives are you willing to undertake for the sustainability of the Food for Us mobile application?	**<u>RVs</u>** Donor funding Apply for funds from government like DRDAR Field shows Market days – where we charge sellers for a stall I think as a buyer, it is not possible for me to fundraise for the app. Maybe if you involve in the events	 F2 F7 F1 F5 F14
	ii) How would you remit the funds realised from the fundraising initiatives?	EFT/ funding stream – (Rhodes University) DRDAR can send money to Rhodes EFT I don't know	F2 F7 F1 F5 F14

		None as of now	
5. Are there any groups of stakeholders that you view as key beneficiaries, but due to socio-economic status would be unable to contribute as per question 4. above? If "Yes" please identify and propose how they may be accommodated?	**<u>Customer segments</u>** yes, **<u>the bakkie sellers</u>** – who sell vegetables from their bakkies I don't think they can afford to contribute but I think they can be buyers on the app too There are some people who come to tell us about the availability of goods to buy but they don't use the app. If the app company if it also creates a group or menu for them to alert of the goods Yes, farmers – the government must subscribe for the black farmers (subsistence farmers) Yes, buyers – vegetable business is not very profitable so every cent counts. The farmers must pay and the buyers should be exempted because we bring business to the community Farmers – because I am no longer struggling to find buyers and I can do it from the comfort of my home via the application Farmers Vegetarians/ vegans Organic	F13 F12 F11 F4 F9 F17 F3

		F16
6. What other means can be used to generate money from the Food for Us mobile application to make it self-sustaining and less reliant on key partners? (Food for Us funding organisations)	**Revenue streams** The app can also involve other business activities beyond what we currently do about just learning way food stuff are sold. You can involve adverts, etc. Web application – way more people can access and subscribe on web Making the companies and retailers pay to become buyers of fresh produce on the app Advertising and subscription – way users or subscribe for their produce to be uploaded and advertised on the app platform Charging commission to the farmers for any successful sale	F7 F1 F20 F18 F11
-cost structure 7. What do you think are the key costs that would be incurred in sustaining the operations of the Food for Us mobile application?	**Cost structure** I think the owners of the app need to have some money to run the app so maybe they need to pay for internet and data Paying the app developers Data – we need data to access the app in order for it to be active	F7 F5 F16

-value propositions 8. What value does the Food for Us mobile application bring to you as key stakeholders?	**<u>Value propositions</u>** As a buyer I think the simplification of getting what I need is the most value I get from the app I do get to know of existence of food to sell that I looked for but never found physically Farmer profit – I can sell most of my produce via the app at low or zero cost Farmer quick online market – the application gives us a quick access to online market Better networking – the application connects us with the buyers creating a better relationship with customers	 F2 F8 F10 F12 F7
9. Would you like to maintain the existing value or add more functions and operations on the Food for Us mobile application to make it sustainable?	VPs The app should bear in mind I am just a rural farmer therefore the use of the app should be simple for me to use I think the owner of the app can consider us buyers to add some buttons that show price of food stuff Add more value – there is a need for a feedback platform on the app for us to rate and report back on the services and the produce that we get Feedback push button to the app developers – so that we can express our challenges in using the app Payment system on the app – for legitimacy reasons there is a need to include a payment system on the app	 F6 F2 F1 F1 F10

10. What ethical considerations would you incorporate in designing the new operations and functions on the Food for Us mobile application to make it socially accepted and sustainable?	VPs	
	I want my identities to be secured from misuse. Also the app guys should know who is using the app and their intentions.	F3
	I would like to see isiXhosa in the app to help with access in the app for all	F4
	I would like to include audio or voice narrations on the application	F9
	A better interface – easy to be used by elderly people	F10
	Accessibility by local people – language – I would design it in many languages to make all the people able to use it	F6
	Privacy of my personal information like my ID number and where I stay on geolocation	F5
	We know that there are apps that do not use the person's data like FNB and Capitec. Must be ethical, find a way for the app to be free (not to use any data) to allow use access	F12
-key activities 11. What key activities would you add or remove from the current Food for Us mobile application to make it more sustainable?	CS	
	Commission payment – after every successful sale, the app should deduct some commission at an agreed rate. Let's say 5 or 10% towards the operation of the app	F1
	Point discount system – to encourage use of the app for many transactions or point system to calculate monthly transactions	F4

	KA I would remove the registration as a buyer and a farmer because you can't be both Buyers' or farmers' business registration number – what if I don't have a registration number but wish to buy fresh vegetables for the house As a buyer, I also need to post a message that I am so and so looking for food stuff to buy. It should not only be farmers alerting us of what they have Web application – include the application online for more users and income generation On app banking services – we should be able to pay on the app and get the receipt of payment for legitimacy I think the app can also consider issues like farmers learning from each other on how we do cropping so the app can also facilitate learning activities	F2 F8 F18 F11 F9 F13
<u>Social inclusion</u> **-customer segments** 12. Who are the customers of Food for Us mobile application?	CS Farmers / buyers/ consumers, retailers, vendors, schools	F4
13. Are there any other community members or stakeholders who would benefit from the continued operations of the Food for Us mobile	CS There are some middlemen who should also use the app	F2

application who are currently excluded from the Application?	Schools, retailers (wholesalers – PnP, Checkers), local food shops, LEDs Those people who connect us farmers to potential buyers; agricultural extension officers who advertise us on cropping Buyers in town	F10 F13 F15
14. What structures would you put in place to make the Food for Us mobile application more socially acceptable, accessible and user friendly?	CS Language – multiple languages, I would like to include isiXhosa and isiZulu on the app Interactiveness – voice narrations, I would want some voice narrations to help the elderly farmers and buyers who have short eyesight Quality graphics for easy and presentable marketing of produce Feedback – recommendation or testimonial sections for us to keep tracking our suppliers for quality produce The app developer should include some sections where the farmer can connect them through the app There must be some buttons where we can view the profiles of the seller and their locations	F16 F14 F8 F2 F1 F12
15. What other revenue streams could be used to make the Food for Us mobile application	RS As farmers we are in cooperatives so if we can a system where a	

operational, while being socially inclusive?	cooperative can contribute to the operation easy than me paying as an individual	F3
	Maybe government can be asked for donations like the way they do at Shoprite they put small boxes on the till where people can drop coins	F5
	Fundraising – as farmers we could fundraise to make extra revenue	F2
	Donations after a successful sale – you can as well towards the sustenance of the app	F16
-customer relationships 16. What can be done to make the Food for Us mobile application socially interactive?	CR	
	Training	F4
	Loyalty points for every sale made on the platform	F1
	Workshops	F19
	Putting more advertising materials and colourful pages makes it interactive and attractive	F17
	Accessibility language – I think including isiXhosa and isiZulu will make it socially interactive	F12
	To be socially interactive the app should have a chat feature whereby we as buyers we can have a brief discussion with the sellers	F10
	Including a place where farmers or buyers can ask for advice maybe on something happening to their crops or how to prolong shelf life of their produce	F1

17. How can customers give feedback, testimonials or recommendations on the product or services received through the Food for Us mobile application without offending other parties?	CR There could be an anonymous rating system for the product and a separate one for the service Rating the buyer on their honesty to fulfill to buy what they ordered. informing the app developer when the transaction is done There could be a number where we can send our complaints about each other then the admin sends the feedback to the other person without tracing back to us Using the emoji to reflect on the quality of service or product Anonymous system using the colour: green for good, yellow for best, red for bad	 F2 F8 F11 F6 F16
<u>Diversifiable (others – limited)</u> **-key activities** 18. Which other activities and additional functionalities would you wish to be included on the Food for Us mobile application to make the application more diverse?	KA Why can't the app not have a simple way of paying to the farmers? If this app is really good, then all transactions should be done right there Don't limit to produce market only but include some products like e-waste or farm waste products Allow trade of all waste such as glass bottles, beer bottles for recycling, metal, plastics etc for the people who do recycling Feedback push buttons or transaction rating after every sale via the app As I said earlier, the app can allow advertising of food stuff and	 F1 F12 F4 F20

	also allow us buyers to post what we are looking for Payment on the app – include the payment plan on the app itself and create instant receipts as proof of payment to prevent cash transactions	 F4 F16
-channels 19. What other communication channels can be incorporated into the Food for Us mobile application to provide feedback to the Software/App developers?	Channels The app should have a section where I the buyer I am disappointed with a transaction, I must share with the developer Review section – for us the users to communicate or feedback the developers There should be a section where we can write complements or complains sending directly to the developers and not to show on the app Toll free number must be included on the app Instant messaging application where you can ask questions and get instant answers Include the contact us section for a quick response	 F1 F7 F15 F17 F13 F3
20. What other decent communication structures can be included on the Food for Us mobile application to allow the customers and clients positive or	Channels As a buyer I would like to rate the seller about their way of conducting business. So you can put a rating track of stars on the app	 F5

negative feedback on a product, transaction or service?	Rating using colour code We can rate each other using stars or points, if you give a bad product, the point is subtracted and then if you get a good review, a product is added Rating system using emoji. Rating system after every transaction	F2 F19 F1
Value addition **-value proposition** 21. What other functionalities can be incorporated to add value to the Food for Us mobile application?	VP The app currency does not vet people. So I can't know on the app if I am dealing with a legitimate or a good supplier Feedback rating on the product or service provided	F6 F9
-key activities 22. What quality control structures can be put in place to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs?	KA As a buyer I want the sellers to be honest if they deceive me of their product they must be recorded by the app owners for warning or even banned from using the app Moderation and monthly results on ratings Strike out non performers or low quality producers If a seller or a buyer on the point system gets to a particular low level of points because of bad products, they must be removed or suspended for a period of time	F2 F8 F13 F11
23. How can the customers be confident in the products or	KA	

transactions happening at the Food for Us mobile application?	Customer ratings also gives confidence to suppliers	F3
	I feel confident to make a payment on the app	F5
	If there was a vetting process at the point of registration then all buyers on the app would be confident about all sellers	F13
	Registration and vetting process – this will make us confident	F6
	I will feel more comfortable and confident to use the app to access the product or services if there are security features to prevent fraud or harm	F1
-cost structure 24. What cost structures can be put in place such that there is fair costing on the products transacted on the Food for Us mobile application?	CS	
	Blacklist bad business – we can be confident when buyers and producers can be blacklisted when conduct bad transaction	F2
	Willing buyer willing seller policy	F4

Appendix F: Analytical Memo 2: Experts and Consortium

Objective 1 (identify key stakeholders – Salient model)					
Category	**Evidence**	**Source**	**Ranking**	**Evidence**	**Source**
NAKey Stakeholders/Partners 1. Who are the key stakeholders in the context of "Food for Us" mobile application?	ELRC-RU	X2, C1	2. On a scale of 1 being **Less** or 2 being **High**	1, 2	X2 C1
	Farmers	X4 C8		1 1	X4 C8
	Buyers	X1		2 1	X1 C5
	Application owners	X5 C4		2 2	X5 C4
	Consortium	C3		2	C3
	Department of Youth	C7		2	C7
	National Government (DTI)	C9		2	C9
	Intermediaries (LED)	C5		1	C5
			3. On a scale of 1 being	(RU)2	X2, C1
				(F)2	X4, C8

			Less or 2 being **More**, how would you rate each key stakeholder's **legitimacy** to the F4us mobile application	C) 2	C3
				(B)1	X1, C5
				(AO) 2	X5, C4
				(DY) 2	C7
				(DTI) 1	C9
				(LED) 1	C5
			4. On a rate of 1 being **Less** or 2 being **More**, how would you rate each key stakeholder's **urgency** to the F4us mobile application.	(RU)1	X2, C1
				(F) 2 1	X4 C8
				(C) 2	C3
				(B) 1	X1, C5
				(AO)1	X5, C4
				DY) 2	C7
				DTI) 1	C9
				LED) 1	C5

Objective 2: Category: Social enterprise elements in building a sustainable business model for a F4us mobile application.		
Category	**Evidence**	**Source**

1. From your own perspective whom (which group) do you describe as the ultimate beneficiaries from the operations of Food for Us mobile application? (power & urgency)	**Cost Structure**	
	For me as a researcher I feel like the farmers and buyers hugely benefit from this app as it enables them to interact socially while doing business	X4
	We benefit by achieving the target and objective that is to reduce on farm waste thereby promoting sustainable production and consumption patterns	X6
	As mobile developers we benefit financially and continued working with the project	X8
	I think the farmers are the ultimate beneficiaries since we developed the app for them to connect in selling and buying surplus food	X9
	We put much on serving the socially deprived people. We see the small scale farmers as the key beneficiaries of the app as they are able to earn some money from the surplus.	C2
	When this project came through to us, it aimed to reduce food waste. Therefore we see that everyone including the farmers and social innovators benefitted from the app	C2
	Since our target or main objective is to reduce carbon dioxide we think we benefitted because of the impact the app had on carbon reduction and on farm food waste	C8
	We benefitted since we managed to subcontract or hire Experts to develop the Food for Us mobile application	C1
	We were the immediate beneficiaries since we were the initiative drivers and in the process Rhodes University was recognised and two MEds came out of the Food for Us projects	C2

2. As Experts/Consortium do you see yourself as key beneficiaries?	Yes. We hosted the app and got paid our developers and hosting services	X3
	As mentioned earlier on, our targets were met “promoting sustainable production and consumption patterns”	X4
	We do not really see ourselves as beneficiaries. Instead, help others such as farmers and researchers to benefit from the social innovation of selling surplus food via the app	X1
	I work on helping the farmers and the buyers to utilise the technology in their transactions. As such, I don’t see myself as a beneficiary but, a middleman between the people and the technology	X9
	Yes, we see ourselves as beneficiaries because the app is helping towards our goal of reducing food waste and consequently carbon footprint	C9
	What we do here aims at helping the vulnerable, we see this as the rural farmers and small business buyers we are not benefiting ourselves	C8
	We are key beneficiaries since we were the immediate facilitators of the project, as an environmentally oriented department we achieve by the reduction of food waste and promotion of local food economies	C2
	Yes, we benefitted from the engagement. We strengthened sectorial relationships	C3
	We got an innovation out there and benefitted from the initially funded project	C1

3. If “Yes” do you think as key beneficiaries you should be the prime funders as well to the sustenance of the Food for us mobile application? (urgency)	No – we develop and host mobile applications for profit. We need to fund our functions and pay loyalties as well. We can’t fund Food for Us	X2
	I think we cannot fund the operations of the app. If anything we can just think of ways to help the low cost of running the application	X9
	We funded the project from the beginning. However, we cannot enjoy with the funding forever. But we really wish the operations of the app to continue. Maybe we can help get some well-wishers to sustain the applications	X5
	I doubt if we can contribute anything financially to the sustainability of the app. Maybe we can just help with ideas on how the operations of the application can continue	X6
	We have been at forefront facilitating the operation of the app. We really wish to continue this. Maybe we can see within our company on how to support this app with further partners.	C1
	Yes we have been funding through human resource and research work (two Med students researched in the project)	C2
	No – our target is to provide expertise and knowledge and we also have to profit from that. So we are not the rightful funders	C5
	No – we offer research work pertaining supply chain value creation, food systems. We don’t have budget for that kind of work	C3
	No, we are mostly a partnering organisation with focus on research work in food systems, social innovation and transformative learning	C6
		C10

4. What contribution would you be willing to make towards the financial sustainability of the Food for Us mobile application?	**Sub-theme** **a) Payments** i) As Experts/Consortium how much would you be willing to pay every month to ensure the continuity of the operations of the F4us mobile application?	**<u>Evidence</u>** We can offer services (research), not cash. So we hope such contributions would be useful in the near future This is difficult to say. Maybe respective organisations may decide and not terminate us in future. I think this is a difficult question to tackle in this workshop because we are all representatives of different organisations we can't suggest or decide now but we can take it up with relevant departments It will be difficult to say because we also host for profit but a way can be worked out as a discount or so We don't have the budget anymore, we used all the funding supporting the app users data provisions. As an institute we don't have that kind of budget anymore Suggestion that government adopt the app and it becomes a government app just like the pregnancy app	C6 C3 X5 X2 C2 C10

	ii) In which format would you be willing to pay i.e. • Airtime • Data • Money market • EFT		
	b) Fundraising i) What fundraising initiatives are you willing to undertake for the sustainability of the Food for Us mobile application?	Do a crowdfunding on the website Would undertake scouting for all calls for proposal that come up from all funding bodies, international and national. Fundraising Call for proposals, volunteer services Call for proposals Ask the people and donors we know to support the app, proposal writing to donors	
	ii) How would you remit the funds realised from the fundraising initiatives?	Bank transfer Through our finance department Through Rhodes University finance system Cheque deposit	

	c) Corporate social responsibility (CSR) i) How willing is your organisation to adopt the operations of the application as a CSR?	We can take a corporate social responsibility of reducing the cost of the operation The willingness would be discussed by the management but there is a possibility We can have a CSR of supporting the app (we need to lobby with the management to consider it) I know that my organisation is conscious about environment and sustainability. I believe this will be considered as CSR project. I will engage with the leadership on my return	
5. Are there any groups of stakeholders that you view as key beneficiaries, but due to socio-economic status would be unable to contribute as per question 4 above? If "Yes" please identify and propose how they may be accommodated.	**<u>Customer Segments</u>** As a researcher I feel like commercial farmers are excluded because they are regarded as big enterprises but they sometimes have no markets and the food is wasted. So the app should be open to them Mobile app developers – they are benefitting but don't have the urgency to fund the app. They should maintain low profit margins Yes, some small scale and backyard farmers are already struggling financially without expecting them to fund something of this nature The application can also utilised by informal traders who recycle the e-waste. They can become part of the stakeholders to find markets their scraps The small scale farmers may struggle to contribute to the app. We are dealing with previously disadvantaged rural farmers are already in low income bracket Farmers – they are very poor or financially challenged to self-sustain or promote the app. They should contribute per sale		X1 X3 X6 C2 C6 C7

	Buyers – most don't have the urgency hence can't commit to high funding of the app, they should contribute as per registration and monthly subscription	C10

6. What other means can be used to generate money from the Food for Us mobile application to make it self-sustaining and less reliant on key partners? (Food for Us funding organisations)	Revenue Streams	
	Adding some revenue features to the business model	X2
	Some multi-level subscriptions for use or advertising space may allow for some revenue	X5
	We see like the app itself can generate money if properly used to advertise various things and we charge on the adverts	X9
	Donations; web hosting and increase customers or followers to generate loyalty benefits from web users	X7
	User subscription – monthly subscription; registration fees; advertising fees	X2
	Fundraising, CSR – on the likes of the app developers they should charge sustenance fees and not to prosper or profit from the app	C6
	Continued research funding opportunities	C7
	Approaching retail giants to own and fund it such as Spar	C3
	Approaching government to take this over, such as DTI, so that it is rolled out as a national government app	C1
	Have the expertise to mobilise both human and financial resources to support the other by transforming the app into a social learning tool that can have some subscriptions	C7
-cost structure 7. What do you think are the key costs that would be incurred in sustaining the operations of the Food for Us mobile application?	**<u>Cost Structure</u>**	
	Key costs will be to retain the web developers for the app	X2
	Hosting of the app by the app developers and data on the part of the farmers and buyers	X7
	Moderator – if there is going to be screening of what gets published or advertised on the app	X9
	Key costs have to do with developing updates for the applications and also developing new functionalities that may be needed	X1
	The app developers labour they need to keep the app updated, fix any problems experienced and maintain it	C6
	We see that the key costs on the app users e.g. farmers to have data in order to use the app	C7

-value propositions 8. What value does the Food for Us mobile application bring to you as key stakeholders?	**Value Propositions** It brings value to my field of interest in that it showcases innovation Fresh produce As a researcher, it gives new perspectives of managing food waste in the local economy. As such, I am able to propose further ways of managing food surplus Achieve or promote responsible consumption and reproduction patterns through community projects It is an innovative concept that is valuable to the rural small scale farmers thereby facilitating the local food economy. The value for me is on local food economy It brings value to the sustainable systems board of work It gives a networking opportunity, gives scholarly ground for students or researchers to work Allows us to realise objectives and have a chance to review our impact in the social development context Provides the ground for research (transformative learning) The mobile application as it moves towards our goal of reducing food waste and ensuring food security	 X3 X7 X5 X6 C2 C5 C2 C1 C8 C4
9. Would you like to maintain the existing value or add more functions and operations on the Food for Us mobile application to make it sustainable?	**Value Proposition** Adding advertising space on the landing and login pages, and charge local businesses for advertising there Definitely add a revenue stream. It is not sustainable because it does not have financial inflow Perhaps adding a tiered subscription for users such as standard and premium Yes, add payment portal. Include advertising subscription and add donation section Flexible to add some functionalities and operations such as chat features to the application to make it more sustainable on its operations by attracting more users, hence more revenue. A donation functionality for donating any food waste before it goes to land fills	 X4 X1 X2 X7 X10 C6 C7

	The aim is not an app that is inaccessible to people. So, as much as I know, there should be revenue to sustain it. I don't know where the revenue will be sourced. Yes include transaction rating to encourage other users, include registration of non-SA users to make it more accommodative. Maybe other functions could be those that could help to be aware of climate change through food management. Add purchase or sale commission, add per transaction loyalty points to encourage more use	C9 C3 C1
10. What cost management structures would you put in place to support those new operations and functions on the Food for Us mobile application?	**<u>Cost Structures</u>** Exploring options more affordable app developers to maintain the app pages **<u>Key Activities</u>** Train some farmers to be able manage and maintain the app pages so that it can a community owned and run app Instead of paying monthly subscriptions to be hosted by the app developers, why not buying the app hosting rights	X9 C2 C1

11. What ethical considerations would you incorporate in designing the new operations and functions on the Food for Us mobile application to make it socially accepted and sustainable?	**Channels** Making it as accessible as possible to allow for a larger reach in the farming community – have the app white listed by the service providers Remove the SA ID number on the registration portal or add other alternatives to identity like passport numbers Including voice notes on the app would make it more appealing and accessible, include multiple languages like isiXhosa and isiZulu Here at the ELRC the issue of ethics is of great importance. As such, the new operations should reflect the wishes of the farmers for example most of them speak isiXhosa in the eastern cape. **Value Proposition** Providing access in multiple languages especially isiXhosa for now to allow access for all App developers need to make sure the personal information is well secured and not misused by the users of the app Ensure information and participants profiles security on the app	X5 X7 X6 X4 C5 C7 C10

-key activities 12. What key activities would you add or remove from the current Food for Us mobile application to make it more sustainable?	**Key Activities**	
	Online payment portal	X1
	Adding subscriptions for users, adding advertising space for local business	X10
	As a researcher, I also need to have an interactive and productive interface with the users of the app. I think the app should also include activities such as surveying food management in SA	X3
	Allow other types of commodities to be traded on the app, e.g. e-waste	X9
	Make the registration easy and accommodative to all	X6
	Payment portal, subscriptions to raise funds towards the sustenance of the app	X2
	Adding a payment platform online on the app	C5
	We would recommend removing sections that may encourage fraud such as indicating personal details and geolocations of the users	C6
	Include a feedback portal to improve or increase subscribers	C8
Social inclusion **-customer segments** 13. Who are the customers of Food for Us mobile application?	**Customer Segments**	
	Buyers, retailers, farmers, community	X2
	Farmers, buyers of fresh produce	X5
	Farmers, buyers	X3
	The buyers, farmers, retailers	C6
	Farmers and business people	C3
	Buyers of fresh produce or vegetables and farmers	C5
14. Are there any other community members or stakeholders who would benefit from the continued operations of the Food for Us mobile application who are currently excluded from the Application?	**Customer Segments**	
	Schools feeding schemes	X7
	Organic segment	X9
	Hospitality industry	X4
	All environmental focused industries	X6

15. What structures would you put in place to make the Food for Us mobile application more socially acceptable, accessible and user friendly?	**Channels** Negotiating with service providers for the app to be white listed or for there to be free mode Voice notes – include voice notes for easy use and availability for old people Language – include multiple languages i.e. isiXhosa and isiZulu I think as a tech transfer person I would include language options so that the application serves people of different linguistic backgrounds Language – include vulnerable languages such as isiXhosa. Voice – include voice narration for those who cannot read Quality graphic design to be attractive We respect privacy. As such, we will recommend personal information of the users be controlled by the app developers only Enable other operations to be usable offline	X1 X5 X8 X6 C9 C1 C8 C10
-revenue 16. What other revenue streams could be used to make the Food for Us mobile application operational, while being socially inclusive?	**Revenue Streams** Fundraising for the app – maybe through project proposal and funding writing Adoption and funding by government The app can be used as an advertising platform for example agricultural stores can advert pesticides and fertiliser on the app and the app developers we charge some fee Donations – open up the app to the public to donate towards the social good Engage the government on the possibility for long term funding of the app as is with the Mom Connect App We are an organisation with possibilities of raising funds for running the app by talking to some donors Further fundraising for continued grant or funding	X2 X7 X4 X5 C5 C6 C9

-customer relationships 17. What can be done to make the Food for Us mobile application socially interactive?	**<u>Customer Relationships</u>** Including an anonymous platform where users may choose to be anonymous on their feedback Toll free number for easy inquiries Audio – include audio notes on the app The app should include a dial feature where a seller and buyer can discuss their trade and agree the prices Adding a farmer support chat or platform where farmers may support each other with their farming practices We strongly recommend that the app should have options to watch videos that maybe of importance to farmers Include customer rating system – colour code system Include FAQ for people to quickly get answers Clients should be able to rate their transactions	X2 X4 X7 X10 C2 C7 C5 C4 C1
18. What measures can be put in place to ensure data and information security of the customers?	**<u>Customer Relationships</u>** Vetting users on registration, requiring FICA documents Security protocols aligned with POPI Act and other security of information protocols and registration Only the developers should have access to the user's info We will make sure that all users are verified of their identities, for example if we are dealing with SA users there are unique government ID numbers that can verified at DHA offices Information security encryptions Vetting systems – all registered users must have gone under a vetting system Verification after a completed transaction The users themselves must make sure they have gathered adequate information about the person before making business decisions such as payments	X1 X6 X8 X9 C1 C4 C2 C10

19. How can customers give feedback, testimonials or recommendations on the product or service received through the Food for Us mobile application without offending other parties?	**Customer Relationships** We the app developers we will develop a section on the app where we will upload the testimonials of the users. The testimonials will be vetted before uploading Include a transaction or customer rating system Moderate a system feedback channels, anonymous rating of products and services Feedback chat It is very important for us to hear the feedback from the app users. As such, the app developers should put our email on the app that can allow customers to reach us Feedback platform that feeds to Food for Us then it sends on to the seller by admin withholding the identity of sender or rater Include the testimonial section on the app. For users to feedback and rate every transaction. Rating systems, colour code, scale system	X3 X1 X5 X7 C2 C6 C8 C5
Diversifiable (others – limited) **-key activities** 20. Which other activities and additional functionalities would you wish to be included on the Food for Us mobile application to make the application more diverse?	**Key Activities** The app can also involve selling of livestock than just surplus food Diversified the types of commodities traded, e.g scrap metal, plastic or glass Payment portal – include a payment function on the app Verification section on the app, to vet or verify every part before completing a transaction We should be allowed to advertise our activities that are for the farmers' benefit, on the app	X4 X6 C1 C8 C2

-channels 21. What other communication channels can be incorporated into the Food for Us mobile application to provide feedback to the Software/App developers?	**Channels** For us the tech transfer people, we feel like the app can have some section to have an option to send a message to the app developer directly Chat function – include the customer feedback chat function Toll free number, which can be used by the users to feedback the app developers Chat function on the app, to chat directly to the developers	X9 C3 C4 C6
22. What other decent communication structures can be included on the Food for Us mobile application to allow the customers and clients positive or negative feedback on a product, transaction or service?	**Channels** We as the app developers can structure a channel where we receive comments from both sellers and buyers to our mail and we take action according to the comments Rating – colour code, emoji, stars Anonymity – should be anonymous rating or feedback. I wouldn't want to know or let the person I rate low know Users may rate each other in some way. It could be colour coded or points Users rate each anonymously using a point system. If you lose all points due to bad business, you are suspended The app developers can put in place rating systems that ensure reviews of transactions conducted in the app Reviews – where users review each other using colour code or emoji	X4 X3 X6 X7 C4 C9 C10
23. What financial tools should be incorporated in the Food for Us mobile application to facilitate safe payment channels?	**Channels** Instant EFT, PayPal, PayFast, Debit or Credit Card on the app There is a need to include secured EFT that is linked to the bank for us the app developer An online payment portal with secured payment Banking options – instant EFT facility	X2 X4 C1 C4

Value addition **-value proposition** 24. What other functionalities can be incorporated to add value to the Food for Us mobile application.	**Value Proposition** Vetting users upon registration would add legitimacy and sense of security Service or product rating Vetting system to uphold high confidence in the customers Verification features on the app will add value to the sellers and buyers as they see it more secure to do online than physical Video advertisement for quality marketing	 X5 X2 X10 C3 C9
-key activities 25. What quality control structures can be put in place to ensure that the key activities done on the Food for Us mobile application are responsive to customer needs?	**Key Activities** The rating functions of the app experience so that the developers may be responsive to the users Rating function for the product or service As funders, we wanted great value for farmers from this app. To continue this we think the app developers can put some checking questions when users are uploading what they are selling Product or service rating – include time turnover of the transaction Chat board – where highest and lowest rate clients or users are reported as a way to encourage quality Testimonials functions on the app to encourage repeated transactions Having testimonials on the app and rate your experience	 X1 X7 X6 X3 X8 C10 X4

26. How can the customers be confident of the products or transactions on the Food for Us mobile application?	**Cost Structure** It is difficult to regulate on the app. Farmers and buyers should agree on costing In business confidence is very important, we recommend that the develop vet all app users so that they have a good track record Knowing that all users have been vetted will bring confidence The rating system would inspire confidence in highly rated sellers **Key Activities** Important details such as the name of the seller, location and price and price of what they are selling should be displayed publicly on the app to increase confidence Having seller testimonials where buyers are happy with a seller and can write a testimonial on their profile Transaction verification or rating can increase confidence Testimonials increase confidence and gives an idea of quality of product	X2 X7 X6 X1 C3 C7 C2 C8
-cost structure 27. What cost structures can be put in place such that there is fair costing on the products transacted on the Food for Us mobile application?	**Cost Structure** No pricing regulation is necessary. Otherwise it will lead to the waste we are trying to eradicate Best not to regulate the pricing Willing buyer willing seller I think the price should be free-floating. No specific regulations but should adhere to domain prices	X4 C2 C5 C1

-resources 28. How can the key resources for the Food for Us mobile application be cost effective?	**<u>Key Resources</u>** Hosting the app under institute like Rhodes, and the app become RU responsibility as part of CSR and community engagement The app ownership needs to be more defined. Once defined, buying the rights so that more affordable developers may be sought You see, this application we developed it, it belongs to us but if a group of farmers or sellers insist to buy and run it themselves, it will be more cost effective to them **<u>Value Proposition</u>** Intellectual properties – it is better to buy intellectual properties like rights than being hosted per subscriptions HRM – Train the farmers to be able to maintain and update the app functions We can also think of using human resources available within the app developers to continue running the app without putting new costs on the developer Human resource – if the app becomes institutional for example part of Rhodes University then the resource could be pulled from the institution	X1 X8 X10 C2 C10 C5

Appendix G: Rhodes University Ethics Certificate

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6 December 2019

Thato Tantsi

Review Reference: 2019-0534-3171

Email: g05s4191@campus.ru.ac.za

Dear Thato Tantsi

Re: Stakeholder engagement to inform a business model design for the 'Food for Us' project

Principal Investigator: Dr. Tshidi Mohapeloa

Collaborators: Mrs. Idah Thato Tantsi

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Ethical Standards Committee (RUESC) – Human Ethics (HE) sub-committee.

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloging number allocated.

Sincerely

Prof Joanna Dames

Chair: Human Ethics sub-committee, RUESC- HE