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PERSONA-BASED JOURNEY MAPPING: AN EMPATHY-BASED BUSINESS  
DEVELOPMENT TOOL FOR NEW SOCIAL ENTREPRENEURS

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## ABSTRACT

Nearly one in four people living in Sub-Saharan Africa suffers from chronic undernourishment, and despite the many great successes of individual nations over the last two decades, the total number of hungry has grown from 170 million to 234 million. Accelerating population growth, desertification, climate change, urbanization, and rising food prices all continue to challenge food value chains (FAO, 2012) (Lappé et al., 2013). The Millennium Development Goals, among other declarations, have presented a clear call to action to create new programs, policies, and technologies capable of reducing the burden of hunger on the continent's population—most of whom live in rural areas and depend on agriculture for their livelihoods. The call to action is not just limited to governments and policy makers; it encourages the private sector to engage. With increased interest and investment from the private sector, it is possible to develop new agricultural technologies that strengthen food value chains (FVCs) while reducing hunger and improving livelihoods.

Although social entrepreneurs can play a larger role in this journey from subsistence to sustainability, they must overcome a wide range of challenges. One of the most daunting challenges faced by new social entrepreneurs in the agricultural technology space is that they are often engaged in the development of products for contexts dramatically different from their own. Confronted by drastically different cultures, financial systems, supply chains, and customer needs, they often have difficulty aligning their value propositions to the demands of those they seek to empower. Additionally, many promising social ventures fail because they cannot develop appropriate market penetration strategies and cannot get their product/service into the hands of the people it was designed for. Social entrepreneurship students and new entrepreneurs need tools that allow them to address the complexities of new contexts and stakeholders early in the planning process in order to avoid significant downstream costs.

Persona-based stakeholder journey mapping, the empathy-based business development tool discussed in this paper, gives social entrepreneurship students and new social entrepreneurs a dynamic and agile way to generate the contextual insight needed to develop successful agricultural technologies. Based on traditional customer journey mapping, persona-based stakeholder journey mapping expands its scope beyond customers to include all implicated stakeholders and the static and dynamic variables that impact their interactions with a venture. Stakeholder journey mapping directly facilitates: (1) the visualization of a venture's stakeholders and potential end-users, (2) the understanding of the abiotic stressors and contextual elements that impact the stakeholders' decision making and purchasing habits, (3) the definition of a venture's possible touchpoints, (4) the prediction of pain-points and opportunity-points, and (5) the development of action strategies to avoid failure. Ultimately, reflection into the insights generated directly through mapping will enable social entrepreneurs to: (1) articulate clear value propositions for each addressable market segment and stakeholder, and (2) identify market penetration and partnership strategies.

**Addendum to published thesis out of condemnation of problematic, offensive, and racist content:**

Submitted: July 29, 2021

It is with my sincerest apologies that I request the following addendum precede the original content of my undergraduate thesis “Persona-based Journey Mapping: An Empathy-based Business Development Tool for New Social Entrepreneurs”:

Though continued education, self-reflection, and the benefit of hindsight, it has become inescapably clear that the sentiment behind the following content exemplifies the White Savior Industrial Complex. I am no longer oblivious to the harm caused by this notion, and therefore must take immediate action to right the wrongs I have directly caused and been complicit in. White Saviorism must be condemned as a problematic, offensive, harmful, and ultimately racist practice.

The original content of this thesis supports the vulgar notion that the Global South is incapable and requires Western intervention to thrive. Not only is this academically inaccurate, but it is also wildly offensive. The Global South, and ex-colonies in general, are not unable— they are exploited. Any other idea perpetuates sentiments of colonialism and racism that we must not support, but rather actively work to dismantle.

The condemnation of the original content of this thesis is a minimally viable step in the process of becoming the person I now strive to be: a White Ally, committed to working alongside black, indigenous, and other people of color in the fight for racial, social, economic, and environmental justice.

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## **Chapter 1**

### **Introduction**

According to the Food and Agriculture Organization (FAO), nearly one in four people living in Sub-Saharan Africa (SSA) is chronically undernourished; they cannot produce, nor have the resources to purchase, the amount of quality food necessary to meet their basic energy needs (FAO, 2012). In addition, despite a significant decrease in the population living in extreme poverty, the population of undernourished persons rose from 170 million in 1990, to over 234 million in 2012 (World Bank, 2013)(Lappé et al., 2013). The Millennium Development Goals, which come due in less than a year, called for halving the population of undernourished people by 2015, but despite the success of some SSA nations, many will not reach that goal.

The majority of Sub-Saharan African nations made progress in reducing the proportion of undernourished persons between 1990 and 2003, but progress stalled and eventually halted between 2004 and 2008. The United Nations, World Bank, and FAO have suggested that increases in agricultural production would have been able to sustain the increasing population, however, rising food prices and the diversification of food crops to fuel production shifted accessibility away from poorer populations (FAO, 2012)(World Bank, 2013). Most of the extreme poor affected by these trends live in rural areas and depend on smallholder agriculture for their livelihoods. They face additional farming challenges of desertification, climate change, and urbanization, and are the most susceptible to increases in food prices and fiscal shock. When devising a way to improve overall nourishment and the livelihoods of these smallholder farmers, it is critical to look to private enterprise for new growth in the agricultural sector.

In the 2013 Millennium Development Goals Report, the United Nations requested “accelerated progress and bolder action” in terms of goals that are not on track to be completed by the 2015 deadline, and they did not limit their appeal to governments. In fact, the same report acknowledged recent decreases in official development assistance from the member states of the Development Assistance Committee (DAC). In 2012, the most recent term for which the report provided data, the amount of official development assistance allocated to the least developed countries fell 13 percent in real terms. Further data from the DAC survey suggests that the shift away from the poorest countries will continue as the DAC continues to strengthen their support of middle-income countries (United Nations, 2013).

With official development assistance declining and the prevalence of undernourishment in SSA increasing, many non-profit organizations, academic institutions and businesses have become engaged in designing technologies that accelerate growth in the agricultural sector. In order to establish the resilient and sustainable food value chains needed to reduce the population of undernourished people in SSA, new agricultural technologies and services are needed at each stage of the food value chain: agricultural production, processing, storage, marketing, distribution, and consumption (FAO, 2012)(Suffian et al, 2013). FVC-wide, the most effective solutions target smallholder farmers, especially women, and generate additional employment opportunities. To this end, there is significant opportunity for social entrepreneurs to make an impact, but in order to ensure the financial sustainability of their ventures, they must first develop appropriate market penetration strategies in order to get their agricultural technology products and services into the hands of the people.

### **Specific Goals and Research Approach**

This thesis seeks to review the specific needs of new social entrepreneurs who are interested in developing agricultural technology ventures in Sub-Saharan Africa, and to develop a new empathy-based journey mapping tool featuring stakeholder “personas” that caters to their needs. Through an extensive literature review and personal interviews, customer journey mapping was evaluated based on new entrepreneurs’ needs, principles of human-centered design, context driven design, and systems engineering. The specific outcome of this study is an evaluation of journey mapping as an empathy-based business development tool that guides new social entrepreneurs through the processes of: (1) identifying key stakeholders, (2) determining stakeholders’ real and latent needs, (3) defining strong value propositions for each stakeholder, (4) recognizing key touch points and pain points, and (5) developing appropriate market penetration strategies.

## **Chapter 2**

### **Addressing the Challenges Faced by New Social Entrepreneurs in the Agricultural Technology Space**

#### **Definition of Social Entrepreneurship and Social Value Creation**

Multiple definitions of the term “social entrepreneurship” have arisen in academia and their reach covers such diverse disciplines as accounting, economics, entrepreneurship, and political science (Short et al, 2009). However, as Lepoutre (2013) notes, three features of social entrepreneurship consistently arise from the literature: (1) the predominance of a social mission, (2) the importance of innovation, and (3) the role of earned income. This is not to suggest that traditional forms of entrepreneurship are not social; entrepreneurial endeavors can achieve major gains in social value while not being considered social enterprises. The main difference, then, between social entrepreneurship and regular entrepreneurship is that social entrepreneurs assign top priority to the creation of social value, while regular entrepreneurs strive for economic value creation above all else.

Just as there is no standard definition for social entrepreneurship, neither is there a standard definition for social value creation. The definition of Seelos and Mair (2005), however, holds significant clout and has been cited across a wide range of sources. According to them, social value is value that caters “directly to basic human needs that remain unsatisfied by current economic or social institutions”.

### **Creating Social Value through Agricultural Technologies**

Adequate nutrition is a basic and universal human need that goes unmet amongst hundreds of millions of people living in Sub-Saharan Africa. At the same time, agribusiness accounts for over 25% of the region's GDP and employs 70% of the total population (IFC, 2014). The agribusiness sector faces challenges across food value chains (FVCs) that prevent production from meeting demand. As expressed by Gomez et al (2011), these challenges can be broken down into the following phases: (1) agricultural production, (2) processing, (3) storage, (4) marketing, (5) distribution, and (6) consumption.

Smallholder farmers—classified as farmers with limited resources, typically with land holdings of less than two hectares—account for the majority of agricultural production. These farmers have limited access to modern agricultural technologies and hence have restricted production capacity in terms of crop yield. Of the crops that are grown, an estimated 15-35%, depending on the crop, can be lost to disease or pests before it is even harvested (Pedrick, 2012). This results in supply-side challenges across the production phases of FVCs. Additionally, severely fragmented markets, poor supply chain infrastructure, and inadequate processing and storage capabilities prevent the adequate processing, storage, marketing, and distribution of many of the crops that are produced. This results in a high rate of food spoilage before it reaches the consumption phase—30% of total volume across the developing world (Pedrick, 2012). These compounding factors often result in prohibitively high and volatile food prices, which inhibit malnourished persons from accessing the food needed to lead healthy, productive lives.

Agricultural technologies (ag techs), along with proper policy and institutional development, have the ability to address challenges across FVCs and ultimately serve as catalysts

for change. Innovations throughout the production, processing, and storage phases have the potential to create social value directly by improving crop yields and quality, and reducing waste. The resulting increase in consistent availability should lower costs and increase consumption. Innovation across all phases of FVCs also creates indirect benefits including: increased employment and entrepreneurial opportunities, diversified and more stable incomes, and stronger more interdependent supply chains.

### **Challenges Faced by New Social Entrepreneurs in the Agricultural Technology Space**

Despite the great potential of ag tech ventures to create social value, even experienced social entrepreneurs face an additional set of risks when compared to traditional for-profit entrepreneurs. Because of the nature of their work, social entrepreneurs often need to function within extreme resource constraints and in areas where access to capital is limited and the market is underdeveloped. In the case of social entrepreneurship students and new social entrepreneurs, the constraints are even more pressing. Students must operate within constraints of sixteen-week semesters, and new social entrepreneurs have limited funds and opportunities to travel. They face frequent transitions in team members or project objectives and commonly have a limited knowledge base of what it is like to work in resource-constrained settings. Social entrepreneurship students and new social entrepreneurs are often familiar with the principles of human centered design, context driven design, and systems engineering, yet frequently fail to internalize these values.

In addition, ag tech ventures are frequently started remotely. Social entrepreneurship students and new social entrepreneurs are required to develop ag tech products or services for external markets that are largely inaccessible during the research and design process. Culture and

acceptance are issues of great sensitivity, and geographic barriers are often difficult, expensive, and time consuming to overcome. For social entrepreneurship students and new social entrepreneurs these constraints can result in design phase issues such as the failure to identify customers' real needs, or the failure to recognize all appropriate stakeholders. To transform a social enterprise idea into a sustainable social enterprise, social entrepreneurs need tools that allow them to overcome these difficulties and provide a product or service that not only meets a need but also generates appropriate demand.



## **Chapter 3**

### **Business/Product Development Tools for New Social Entrepreneurs**

#### **Differentiating Between Level One and Level Two Development Tools**

Over the three past decades, as social entrepreneurship has emerged as an active field of research and practice, organizations like Ashoka, the Skoll Foundation, the Aspen Institute, and the Schwab Foundation have worked to develop training and educational materials. Governments have also become increasingly involved in funding such initiatives through grant programs (Choi and Majumdar, 2013). The stock of tools available to social entrepreneurs today is greater than it has ever been, and more still are looking to traditional business for insight. Thought leaders like Harvard Business School's Clayton Christensen, Strategyn Founder and CEO Tony Ulwick, and IDEO's Tim Brown have all published works about the role of corporate innovation's best practices in the social sector (Christensen et al., 2006)(Ulwick et al., 2008)(Brown and Katz, 2009). Many tools have been developed to help social entrepreneurs advance their missions, but not all are helpful across the entire spectrum of business/product development. To differentiate between different tools and further define their role in practice, tools can be thought of as belonging to level one or level two planning (Mehta and Mehta, 2011).

Level one business/product development tools are applicable across the disciplines of traditional entrepreneurship and social entrepreneurship. They help entrepreneurs capture the essence of their venture's business operations and gain a systems-level overview. Tools like the Osterwalder (2010) Business Model Canvas and its spinoff the Lean Startup Canvas exemplify level one planning. Both canvasses are clearly structured and help entrepreneurs define and

articulate their business plans in a highly visual way. The canvases' visual nature prioritize speed and adaptability and are more conducive to group work and collaboration than is a written business proposal. The Business Model Canvas (Figure 1) breaks an entrepreneurial venture down into nine components: (1) key partners, (2) key activities, (3) key resources, (4) value propositions, (5) customer relationships, (6) channels, (7) customer segments, (8) cost structure, and (9) revenue streams. It then segments them into boxes on a single sheet of paper. The Lean Startup Canvas takes an identical approach minus the adaptation of: (1) key partners, (2) key activities, (3) key resources, and (4) customer relationships. It shifts the approach to: (1) problem, (2) solution), (3) key metrics, and (4) unfair advantage, respectfully. Both canvases are endorsed by successful businesses ranging from Intel to the World Wildlife Foundation, and have been the subject of numerous meet-ups and workshops across the United States of America (Osterwalder, 2010)(Lean Startup, 2014).

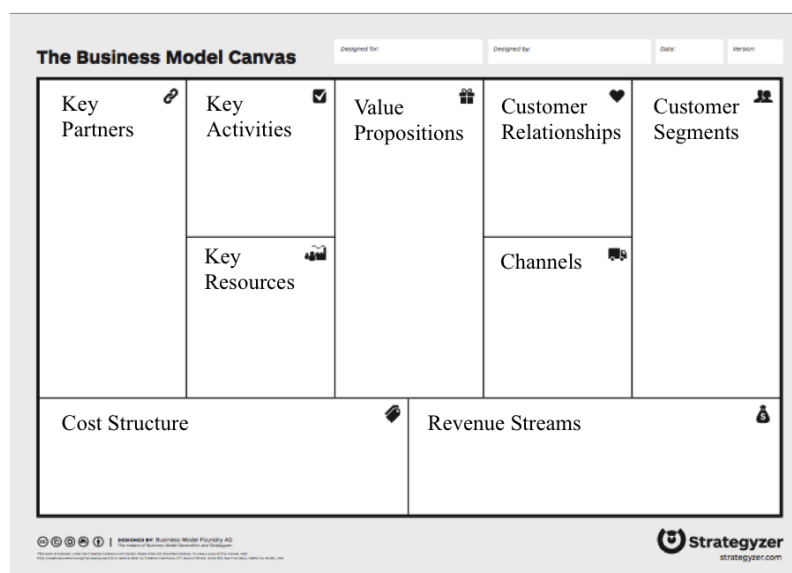


Figure 1: Business Model Canvas, Adapted from Osterwalder (2010)

While level one tools are applicable across the fields of traditional and social entrepreneurship, level two planning tools need to be further nuanced for use by social entrepreneurs. For example, the Phase-Gate-Process outlined by Ulrich and Eppinger (2011) is considered to be an effective level two business/product development tool. The process directs entrepreneurs through the phases of planning, concept development, system level design, detailed design, testing, and production ramp-up, but assumes a working knowledge of the design context, which many new social entrepreneurs or students do not immediately have due to the constraints mentioned in Chapter 2. It also undermines the importance of culture and abiotic stressors and does not recognize stakeholders that are not primary customers or consumers. These compounding factors make the Phase-Gate-Process an appropriate level two planning tool for traditional entrepreneurs, but not an ideal tool for social entrepreneurship students or new social entrepreneurs.

Social entrepreneurs need level two tools that go beyond traditional level two planning to ensure that their ag tech products/services and implementation strategies are appropriate for the complex and resource constrained environments they work in. Successful level two planning tools extend their efforts beyond the scope of business plan development to include scenarios about who stakeholders are, what their specific needs and contexts may be, how customers or consumers will pay for the ag tech product/service, and how they will sustain it (Mehta and Mehta, 2011). This kind of planning ensures that entrepreneurs not only create valid products and services that meet real needs, but can also deliver them to customers in ways that generate demand. To develop these scenarios and gain insights into the development and delivery of their ag tech products/services new social entrepreneurs need a way to expand their understanding of stakeholders and contexts without being stalled by their own constraints. Empathy, in this way, becomes an essential feature of level two tools.

### **The Importance of Empathy in Level Two Planning**

Empathy-based tools guide students through the business/product development process by having them assume the qualities and needs of their customers and consumers before making major design or business development decisions. In this way, students are better able to understand the abiotic stressors imposed on their venture by the specific context and align their decision-making processes accordingly. Empathy-based tools also facilitate contextual learning without forcing students to physically travel to their venture's host countries. All these elements combine to make empathy-based tools a better fit for social entrepreneurship students and new social entrepreneurs. One tool that has the potential to combine all the necessary factors of level two planning and be adapted for use by social entrepreneurship students and new social entrepreneurs is customer journey mapping.

### **Literature Review: Customer Journey Mapping**

Customer journey mapping, also known as user journey mapping, customer experiences mapping, user scenario mapping, or customer lifecycle mapping, is a visualization tool used to gain insight about how customers interact with a business. In the setting of traditional for-profit businesses, the tool has seen a sharp increase in use over the last five years, and benefits are suitably acknowledged. In the setting of social enterprises, though, the tool has only seen a modest uptake. The best practices of customer journey mapping were collected as a product of nine personal interviews with current practitioners, and an evaluation of surrounding literature. Though there is no single model or method for customer journey mapping, findings supported

that the key best practices are: (1) a team-oriented execution, (2) a highly visual non-linear nature, (4) the importance of contextual information, and (3) an emphasis on stakeholders.

### **Team-Oriented Execution**

The team-oriented nature of empathy-based tools has three major benefits. First, collaboration has the potential to create positive team dynamics and strengthen mutual commitment to execution of the project. It also serves the purpose of aligning the team's mission and values, which are important in moving toward a common goal. Finally when working with a diverse team (in terms of discipline, culture, or orientation), collaboration is more likely to spark ideas and generate more creative approaches than brainstorming alone (Wang et al., 2011).

### **Highly Visual and Non-Linear**

Visualizations are at the core of customer journey mapping. According to several practitioners, the creation of visuals facilitates active participation and listening within the group and stimulates participants to articulate their thoughts and insights in ways other than through written word. It also promotes creativity and divergent thinking among participants and encourages productive dialogue and debate (Dahl et al., 2001). The process of creating the visual is not the only benefit, though. The final visual product also allows observers to quickly digest a system overview of the venture and can easily be used as a communication tool.

Emphasizing the complex non-linear nature of empathy-based tools promotes system level thinking and allows teams to push through the difficulties of aligning their perceptions of the system. It also proves the importance of context as situations are allowed to intertwine and

interconnect. Some practitioners frame this dynamism as the most important component of the ir map. The example from Pluck (2013) shows an example of non-linear mapping (Figure 2).

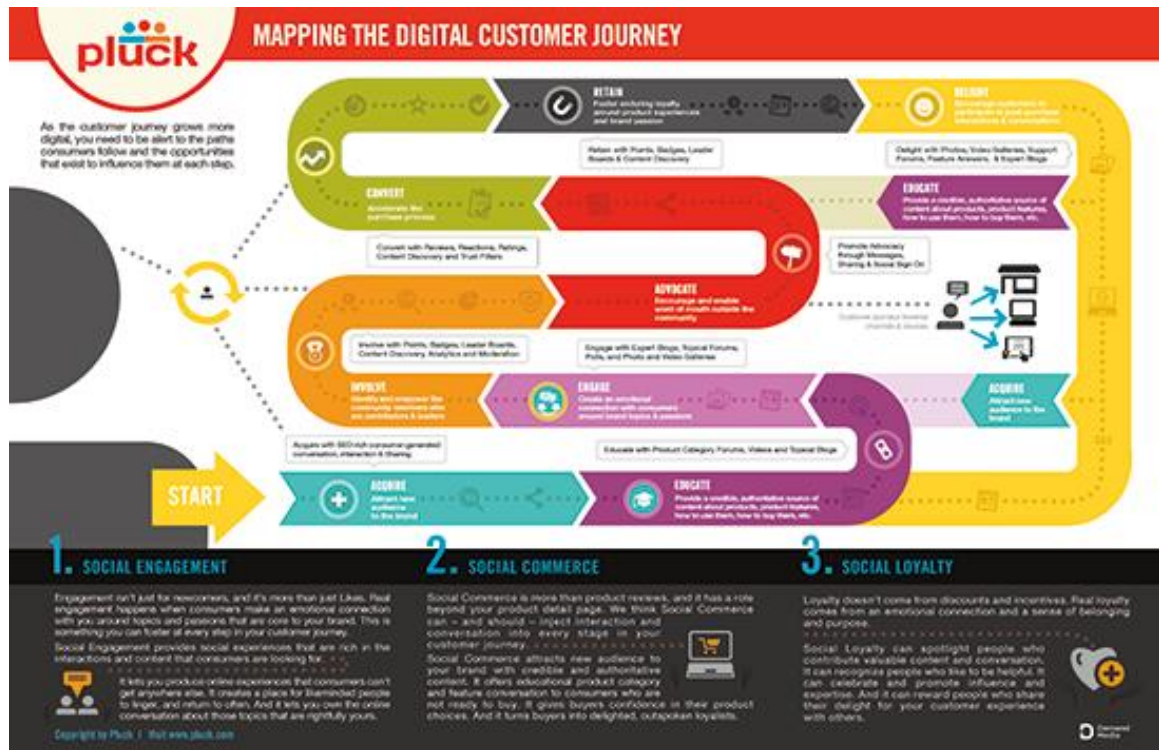


Figure 2: Example of a Non-Linear Journey Map

Other practitioners choose to embrace the non-linear nature of the customer journey by designing their map around key journey steps rather than exclusive touchpoints. This allows customers to circle back to certain touchpoints without causing the visualization of the journey itself to circle back. An example is the customer journey map that the SmartCities project (an initiative supported by The North Sea Region Programme and the European Union) made for the Edinburgh Pension Fund (2011). The map below (Figure 3) illustrates that for the single touchpoint of an online application, a customer can circle back three or four times. Instead of representing this by three journeys converging on a single touch point, SmartCities represents it

as three separate journey steps: (1) making an application, (2) application queries/help, and (3) query with benefits paid. This allows the journey to be visualized linearly while not compromising the complexity of a single touchpoint.

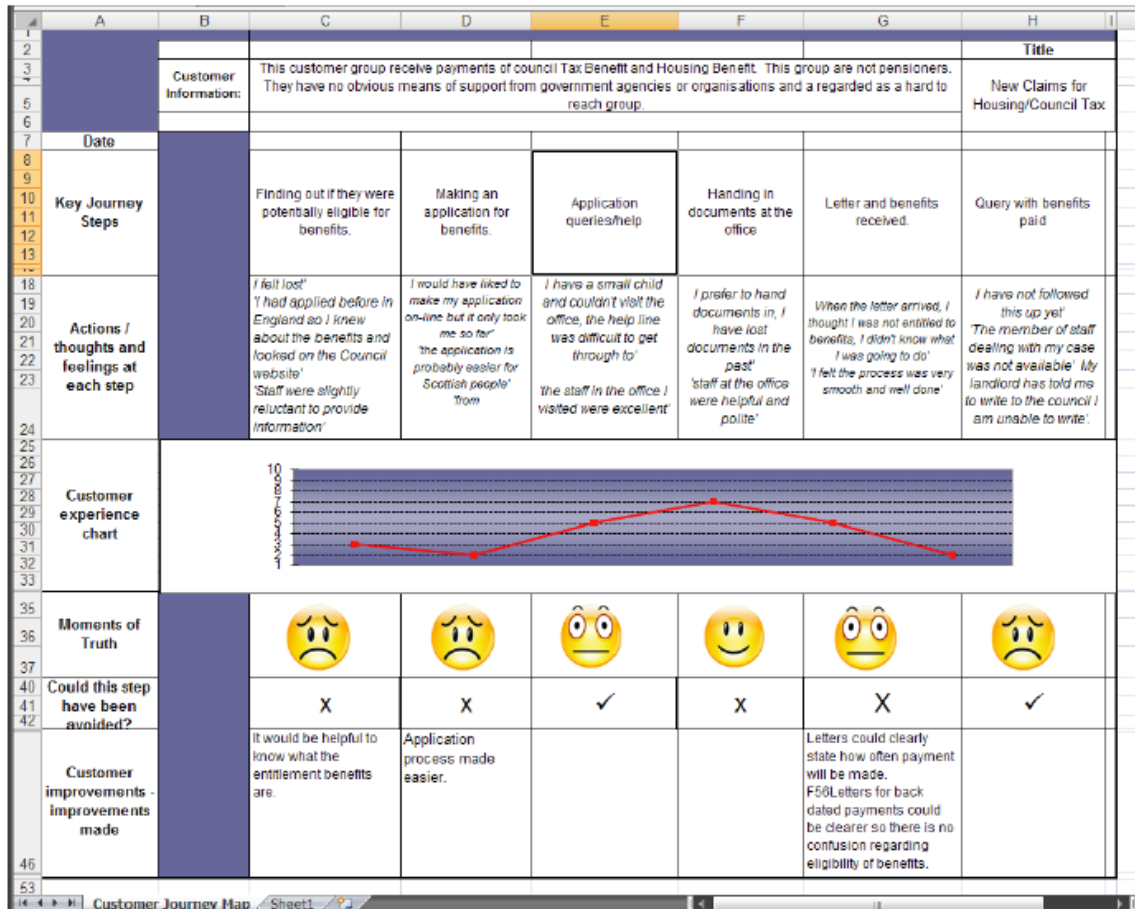


Figure 3: Journey Map using Key Journey Steps

### Contextual

Empathy-based tools that promote context driven design and business development embrace the complexities of culture and resource constraints. Understanding these elements is critical for a team's success as they play into decisions at every stage of a venture's development

and impact every aspect of the marketing mix and implementation strategy. The intricacies of context are captured across the board through touchpoints and emotional input.

Touchpoints, which are simply the points at which customers interact with a business, serve as the foundation of journey mapping. Although practitioners disagree about exactly when to define touchpoints during the mapping process, they all agree that it is a critical part of mapping the customer journey. A recent online video release from Stanford's d.school (2013) put it this way, "imagine you're tasked with designing something for people going to get coffee. If your understanding is that people get coffee and then they drink it, you've missed out on a lot of the different steps and stages in between..." By following the journey through a customer's eyes, journey maps are able to see all the touchpoints that a customer sees which leads to a more meaningful understanding of the context.

Secondly, while some practitioners like Extraprise (2013) argue that customer insight should be data driven and as scientific as possible, others maintain the importance of emotional input, and the two need not be exclusive. In a recent blog post, Joanna Lord, the current Chief Marketing Officer at BigDoor, pointed out that the capacity of customer journey mapping to include sentiment and emotional input sets it apart from more traditional models of gaining customer insight (2013). She is not the only one to suggest this. Companies like AgileOne (2013) and The Customer Journey Consistency (2013) have both posted blogs on their corporate websites dealing with the importance of emotional insights in generating operational empathy.

### **Emphasis on Stakeholders**

Finally, emphasizing the importance of stakeholders is critical to generating empathy. This puts people at the core of businesses and is the foundation of customer journey mapping. In order to build a successful entrepreneurial venture, new social entrepreneurs and students must be



encouraged to absorb their stakeholders' needs and preferences into their deliberations at each stage of the venture. Stakeholders are not all implicated to the same degree, however. The broad term "stakeholder" covers customers, end-users, partners and all other associated parties, but as the name suggests, customer journey mapping gives total priority to customers. Customer journey mapping practitioners have several tools for focusing their attention on their customers, the most universal of which are the use of segmenting customer markets and the creation of customer personas.

As with any marketing tool, segmentation is at the core of customer journey mapping. The experiences that different customer segments can have around a product or services can change their interaction with a company dramatically. Segmenting the customer base into manageable and addressable subsets allows entrepreneurs to more accurately represent the journeys of different customers. As Tincher (2013) explains, trying to combine the journeys of different segments "creates a diluted map that applies to no one". In order to view the journey of a single segment, practitioners need a way to empathetically align themselves with a segment. This can be done through the creation and use of customer personas.

The North Sea Region Programme (2011), Touchpoint Dashboard (2014), Lord (2013), Hinshaw (2012), Samsel (2013) and Walker Information (n.d.), all tout the importance of creating customer personas at some point during the customer journey mapping process. Typically, creating personas happens within the first three steps, but the method for creating and applying them is varied. To some, customer personas are used simply as a tool to align the visions of the team compiling the journey map. In this way, the team is able to look at the journey through a single set of eyes and make a single general journey map. Others use personas to reflect their market segmentation strategies. In this second strategy a general persona is created for each of the market segments and a journey map is created for each resulting persona.

Though limited, there are practitioners that do not use personas while creating a customer journey map. Bruce Temkin (2010), for example, promotes “initial hypotheses” created by a business’s internal team over customer personas citing “a very high correlation between the priorities set in company workshops and the things identified by customers”. This technique is limited in scope though, and inappropriate for social entrepreneurship students and new social entrepreneurs who do not yet have an intimate understanding of the constraints and contexts faced by their customers.

## **Chapter 4**

### **Stakeholder Personas**

#### **Background**

Although the exact origin of personas as a tool is unclear, it is generally accepted that the concept arose from the simultaneous work of Angus Jenkinson and Alan Cooper circa 1995 (Cooper, 2008) (Jenkinson, 1994). From their invention, personas were used as marketing tools to uncover and concisely represent the needs, wants, and limitations of users, customers, or consumers. Across all layouts and methodologies, personas share certain points. First, all personas are fictional archetypes of a larger segment or group. They simultaneously represent no one person exactly and represent all members partially. Even though personas are grounded in fiction, individual personas are based on real data points and research. Finally, the importance of precision far succeeds the importance of accuracy. That is to say that personas must be extremely consistent onto themselves, but are never expected to represent a single right answer.

#### **Rationale**

While customer journey mapping focuses its efforts on the customer journey, the simultaneous journeys of other stakeholders is critically important. The concept of customer personas can be expanded to reflect not only customer personas, but personas of end-users/consumers, partners, and all other involved parties. This is especially relevant for social entrepreneurship students and new entrepreneurs who, due to temporal, financial, and educational

constraints, cannot always meet with and understand critical stakeholders early in the venture. While there is no replacement for in-depth ethnocentric studies, students must have some method for understanding dynamic variables in order to develop viable ag tech ventures. For this reason, pre-generated personas that cover the stakeholders related to agricultural technology products/services in Sub-Saharan Africa are necessary to advance the process and generate operational empathy. While the personas do not accurately portray every individual ventures will likely encounter, they provide generalizable content that allows students to build strong empathic connections and generate understanding quickly and without leaving the classroom.

### **Determining the Identity of Stakeholder Personas**

According to Suffian et al. (2013) all ag tech ventures share the same nine groups of primary stakeholders: (1) manufacturing/technology firms, (2) agriculture ventures, (3) cooperatives, (4) informal groups, (5) farmers, (6) marketing agencies, (7) financing agencies, (8) training/vocational institutions, and (9) partners. Nearly all other possible niche stakeholders fall under one of these larger categories. In order to systematically determine the identities of the individual stakeholders needed for the journey mapping workshop, these groups were studied, augmented and refined.

First, the “manufacturing/technology firm” category was completely removed. The venture-teams participating in the journey mapping workshop will serve as the manufacturing/technology firms and therefore the stakeholder needs will be represented by the self interest of the teams. The “informal group” category was also removed. Due to their informal nature, reliance on trust, and varied nature, it was simultaneously inappropriate to include them as long-term stable stakeholders and impossible to determine an appropriate archetype through which to personify them. Likewise, the “partners” category was determined too difficult to

accurately personify. Partners are venture-specific, and should not be generalized. Instead, a generic NGO category was added to the typology to encompass the interests of socially minded partners.

The final collection of stakeholder personas, (displayed with the their corresponding stakeholder groups in Table 1 below) include: (1) production-side agro entrepreneurs, (2) processing-side agro entrepreneurs, (3) distribution-side agro entrepreneurs, (4) supply cooperative, (3) marketing cooperative, (4) smallholder farmer, (5) marketing agency, (6) formal financing agency, (7) vocational institute, and the (8) non-governmental organization.

**Table 1: Primary Stakeholders**

<i>Stakeholder Group</i>	<i>Stakeholder Persona</i>	<i>Explanation</i>
1. Manufacturer/technology firm	N/A : Venture-team represents the manufacturer/technology firm	The manufacturer generates profit through the production of products/services. They are responsible for establishing the partnerships and business relationships necessary to maximize demand and make sales.
2. Agricultural Venture	Production-side Agro Entrepreneur	Production-side Agro Entrepreneurs have identified a market for their agricultural products and have expanded farming/production operations to increase their revenue.

	Processing-side Agro Entrepreneur	Processing-side Agro Entrepreneurs generate revenue from the processing of agricultural goods. They add value to the produce created by the Production-Side Agro Entrepreneurs.
	Distribution-side Agro Entrepreneur	Distribution-side Agro Entrepreneurs identify markets for agricultural goods and serve as market linkages between producers and retailers.
3. Cooperative	Supply Cooperative	Supply Cooperatives pool resources to support the collective purchase of agricultural inputs such as fertilizer, seeds, and implements.
	Marketing Cooperative	Marketing Cooperatives function to maximize demand for their members' products, and streamline the packaging, marketing, and distribution processes.
4. Informal Group	N/A: Informal groups are built on trust and hold no further obligation to continue membership with the group. There are no formal requirements for membership. Although it is important to recognize the existence of these groups, it is not feasible to create an archetype persona.	An informal group of farmers that joins together through no legal, formal, or binding agreement to achieve a common goal.
5. Farmer	Smallholder Farmer	Smallholder Farmers produce agricultural goods on a plot of land less than two hectares. They sometimes have access to markets.

6. Marketing Agency	Marketing Agency	A Marketing Agency generates revenue through commission by successfully sourcing products, identifying markets, and optimizing the transportation and storage processes.
7. Financing Agency	Formal Financing Agency	A Financing Agency generates revenue through the interest made from loans.
8. Training/Vocational Institution	Vocational School	Training/Vocational Schools are either supported by government/NGO programs or generate revenue through tuition fees. They provide training to individuals who are interested in acquiring specific skills.
9. Non-Governmental Organization	NGO	An organization that is not affiliated with the government and functions to provide goods or services to advance a specific social mission. NGOs further create and maintain relationships to minimize cost and maximize impact.

### **Determining the Qualities of Stakeholder Personas**

The most important aspect of the stakeholder personas is their ability to offer insight into the dynamic aspects of their lives. Many new social entrepreneurs are not aware of these dynamics or the abiotic (non-living) stressors at play in their interactions with their stakeholders. The personas seek to encompass various abiotic stressors—trust and social capital, supply chain resiliency of goods, product marketing, product scaling, access to capital, collective ownership, rural-urban migration, and environmental impact—as elements of the visual representation

(Figure 4)(Suffian et al, 2012). To capture these aspects, a series of twenty stakeholder persona components was created and defined for each individual or organization (Table 2).

**Table 2: Stakeholder Persona Components**

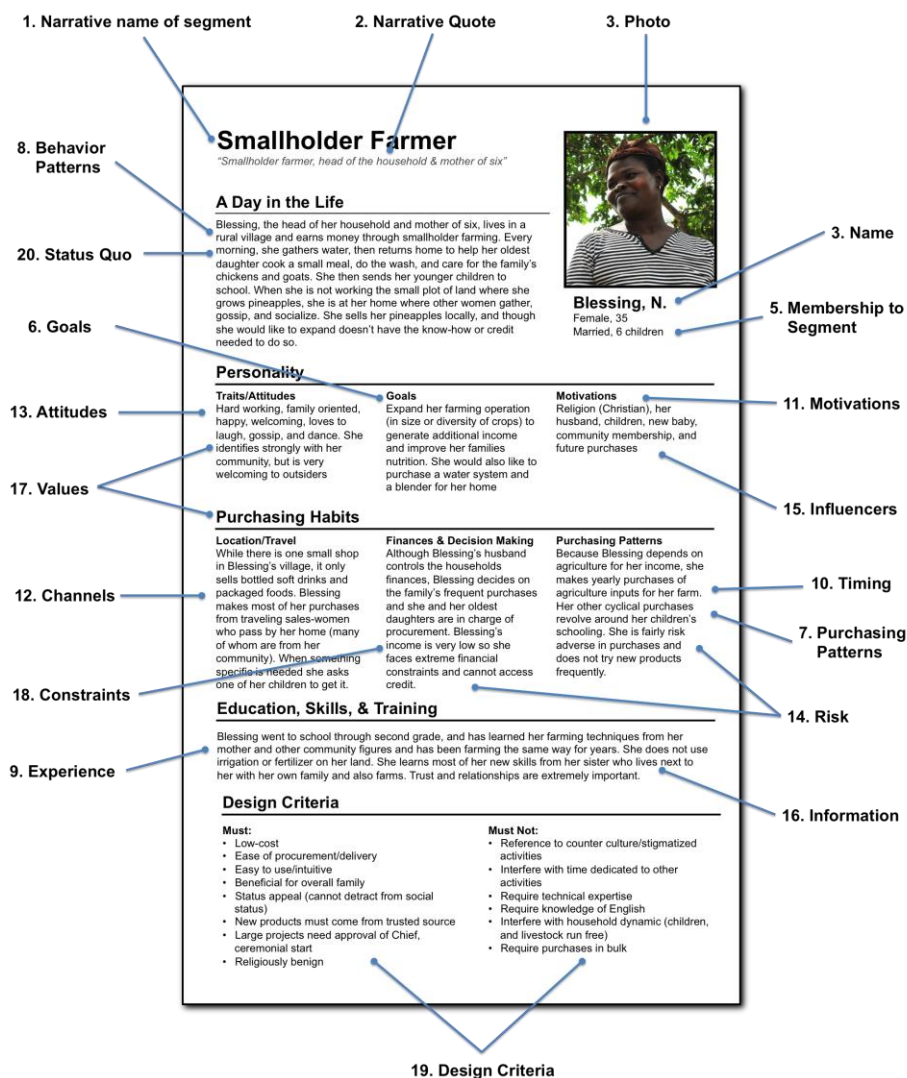
<i>REF #</i>	<i>Component</i>
1	<b>Narrative Name of Segment</b> (title of stakeholder archetype)
2	<b>Narrative Quote</b> (a quote that characterizes the segment archetype)
3	<b>Name</b> (name of the person or organization the persona describes)
4	<b>Photo</b>
5	<b>Membership to Segment</b> (qualifiers that connect the persona to the segment)
6	<b>Goals</b> (the person's/organization's goals, not only related to a venture but in life)
7	<b>Purchasing Patterns</b> (who makes the purchasing decisions, handles the money, and actually acquires goods/services)
8	<b>Behavior Patterns</b> (the activities, habits, or actions that the segment archetype goes through daily/weekly/monthly/yearly, and how this effects the way they buy/interact with a product/service)
9	<b>Experience</b> (the experience needed to interact with a product/service)
10	<b>Timing</b> (how this persona functions over the course of a year, i.e. the effects of seasonal changes)
11	<b>Cultural Elements</b> (how this persona identifies with ethnic or religious groups, how it impacts the way they make decisions, and issues associated with not belonging to a certain group)
12	<b>Channels</b> (purchasing channels the persona currently uses)
13	<b>Attitudes</b> (whether working with this person or business subjects your venture to prejudice, i.e. is the person stigmatized. If an organization, the brands positive or negative connotation)
14	<b>Risk</b> (whether the person/business has to overcome risk to make the purchase, if so how big the risk is and how they will manage it)
15	<b>Influencers</b> (the influencers/motivators in their life; internal vs. external)
16	<b>Information</b> (how the persona gathers information, and how do they choose which information to trust)
17	<b>Values</b> (the personas values)
18	<b>Constraints</b> (the constraints faced by persona, both personal and financial)
19	<b>Decision Criteria</b> (the elements of a product/service that this persona must have/must not have)
20	<b>Status Quo</b> (what this persona is currently doing, the unmet needs/opportunities/trends that cause them to need your product/service)



## Building Stakeholder Personas

In order to capture and quickly communicate the insights reflected in Table 2, all stakeholder personas were crafted in a consistent yet highly visual way (Figure 4). Individual elements were synthesized into four basic sections for persons/organizations: (1) a day in the life/operational overview, (2) personality/organizational dynamic, (3) purchasing habits, (4) design criteria. Insights were gathered from various sources and personal interviews and are explained in the following sections.

Figure 4: Stakeholder Persona Visual



### **Production-side Agro Entrepreneurs**

The production-side agro entrepreneur is one who identified a market for primary agricultural goods and has expanded their operations to meet demand. They are farmers who have taken a more entrepreneurial role in FVCs. The production-side agro entrepreneur is personified as a woman named Hadiya, M. a 30 year old female living outside a small town with her mother, sister, husband, two nephews, and two small children. Her gender and family situation were derived from observations across numerous publications dealing with small to medium sized agro enterprises in the developing world. To differentiate her from the smallholder farmer, she is personified as owning four hectares of land (smallholder farmers are generally defined as farming less than two hectares), and employing four community members. Although statistically speaking Hadiya likely only attended school through the primary level, her family-taught techniques are efficient and have been further augmented by her attendance at workshops and vocational day programs provided by the state and NGOs (Abler, 2011). Because of this, she grows a variety of crops on her land and has the training needed to manage her small workforce.

Her personality traits and purchasing habits reflect insight generated through personal interviews and video interviews available online through the United Nations Industrial Development Organization (2014), the Reel2Reel Tanzania (2011), K24TV Kenya (2014). Hadiya is a hard working and future-oriented woman who values her family. Although she wants to expand her farming operation, she prefers to minimize risk. This is because small-medium sized agro enterprises are highly susceptible to economic or environmental shocks (African Smallholder Farmers Group, 2010). Her finances and decision-making processes are based on a basic knowledge of farming inputs, retail in rural Sub-Saharan Africa, gender dynamics in the household, and the widely acknowledged lack of access to credit to female entrepreneurs.

### **Processing-side Agro Entrepreneurs**

Processing-side agro entrepreneurs generate revenue through creating value-added agricultural products. They purchase inputs from production-side agro entrepreneurs or smallholder farmers and either sell their goods directly or employ the help of a distribution-side agro entrepreneur or a marketing agency. Here, the processing-side agro entrepreneur is personified as Jane, T., a 27 year old female who lives in a mid-sided town with her mother, sister, husband, and three children. Insights into her gender and family situation came from a large body of literature detailing women's role in food value chains. She has a small informal peanut roasting business that currently employs her daughter and sister, but she hopes to expand. By roasting peanuts, she plays an important role in the FVC because she adds value to a primary commodity and preserves food for later sale. Still, she faces challenges because her product is not differentiable and many other women sell the same product.

Her personality and purchasing habits were again derived from personal interviews and a general knowledge of agricultural dynamics in Sub-Saharan Africa conveyed through video productions from Gbs Kenya (2012). Her trade was learned from watching other women, but she does not see a benefit in attending workshops despite her desire to expand her business. She feels that expansion is an issue of capacity rather than a lack of education (Zhang et al. 2011). Statistically speaking, she travels by foot or via public transport and according to peanut availability and demand must make large cyclical purchases and has an irregular income. Due to common familial dynamics, her husband and mother have significant sway over her financial decisions.

### **Distribution-side Agro Entrepreneurs**

The distribution-side agro entrepreneur generates revenue by acquiring agricultural products and selling them directly, or in some cases to selling to marketing agencies. Ngozi K. a 28 year old male, personifies the distribution-side agro entrepreneur. Unlike the production-side or processing-side agro entrepreneurs, Ngozi lives outside an urban center with only his wife and three children. His activities are based off Ephraim Nkonya's (2002) work detailing the characteristics and constraints faced by 544 agricultural output traders from 2000-2002.

Ngozi is a profit-focused individual who also seeks wealth and wellbeing for his family. He is a born salesman and relationship builder. Since his cash flow is irregular, he has some savings but spends most of his money as he earns it. He could have credit if he needed it, but obtaining it is still a difficult process. He attended school through the secondary level and is eager to learn if it will increase his revenue. His cell two cellphones and truck are indispensable to his livelihood.

### **Supply Cooperative**

In a supply cooperative, farmers come together to purchase agricultural inputs and implements in bulk, save money, and make the production side more efficient. Supply cooperatives are less common in Sub-Saharan Africa than marketing cooperatives, but they are still important to note. They vary drastically in size, but many supply cooperatives are relatively informal and small (Pinto, 2009). The supply cooperative persona includes ten members, the majority of whom are female and between the ages of 20-30, though there are some males.

Based on the operational insight from Chambo (2009), the supply cooperative has one strong leading figure (Joseph) and is member-owned, community oriented, and more willing to

make investments or take risks than a single farmer. The persona also points out that member-farmers own and manage their own land and assemble only occasionally to talk about cooperative business. The cooperative is motivated and held together by trust, relationships, and potential for growth.

### **Marketing Cooperative**

The marketing cooperative is the most common type of agricultural cooperative in Sub-Saharan Africa. Within a marketing cooperative farmers join together to establish a more efficient processing, packaging, and distribution process for their products. As a collective, they can better gain the attention of exporters or marketing agencies and have the stronger bargaining power needed to earn more competitive prices. These cooperatives can have hundreds of members, but the persona marketing cooperative includes nine. Aya, one of the members, is personified as broadly managing the cooperative's activities.

The cooperative's dynamic and purchasing habits were defined on the foundations of Pinto (2009) and Chambo's (2009) work. The marketing cooperative is member-oriented, and willing to take some risks. They aim to increase all members' profits and to learn how to refine their marketing processes so that they can continue to demand high prices for their produce. They are collectively motivated by their business, improving the status of their cooperative (and hence products) and growth potential. Purchasing habits are based on seasonal purchases associated with agricultural production, processing, packaging, and transportation.

### **Smallholder Farmer**

In many cases the smallholder farmer will be the end user for agricultural technology products and services, but at other times they are simply stakeholders. Smallholder farmers, according to commonly held definitions, are farmers working on a plot of land less than two hectares. The smallholder farmer is personified in Blessing, a 35 year old female, is the head of her household and lives with her extended family, husband, and six children. It is well recognized that smallholder farmers are traditionally women, though the specifics about her personality and purchasing habits were derived from the work of IFAD and Liningston et al. (2011).

Blessing has a monoculture farm growing only pineapples, and although she would like to expand, she doesn't have the know-how or credit needed to do so. She simply farms to sustain herself and her family. She is motivated by her religion, husband, children, and community membership. She is risk adverse and rarely travels, preferring to send her older children to make purchases from nearby towns. Her husband is in charge of the household's finances, although Blessing makes many decisions about her farm and the household for herself. Most importantly, she is vulnerable to environmental or financial shocks and this shows throughout her life.

### **Marketing Agency**

Marketing agencies generate revenue through commission by successfully sourcing, processing, and marketing agricultural products (mainly for exporters). They are an important part of the FVC because they have the potential to connect producers, processors, and distributors to larger markets. Agencies can vary dramatically in terms of size and mission, but based off the case studies of eight specific marketing agencies across Sub-Saharan Africa, their general characteristics were personified as K&J Ag. Co.

K&J Ag. Co. was established in 2003 through a partnership between the national government and a German NGO. They now employ fourteen people and operate two processing and cold storage plants. They operate by selling packages of agriculture inputs and implements to farmers at wholesale prices at the beginning of planting season, and purchasing their crops at season's end. They then collect (either directly from the farm or from a collection point) and transport produce to their centers where it is processed, packaged, and shipped to the EU.

They are profit-oriented, and while they will work directly with small farmers they prefer to conduct business with cooperatives or farmers associations. Their goals are simple: increase profits. They do this by ensuring that their farmers have the inputs needed to decrease the likelihood of crop failure and crop spoilage. K&J Ag. Co., like many other marketing agencies, was heavily reliant on donor support and training in the beginning, but with growth and success has some financial independence. They now make decisions internally and are fairly agile. They purchase agricultural inputs cyclically as seasons dictate, though their purchases of processing/packaging inputs happen regularly and as needed.

### **Formal Financing Agency**

Financing agencies are essentially financial institutions that have the ability to issue credit and generate revenue through the fees and interest rates paid by their members and borrowers. Banking institutions are highly varied across Sub-Saharan Africa, but based on the generalizations provided by the European Investment Bank (2013), the formal financing agency was personified as Equity Bank.

Equity Bank provides credit and financial services to businesses and individuals. They offer general deposit and payment services to nearly everyone who requests it, but are much more conservative about issuing credit. Because they do not have access to a formal credit rating

system, they collect information via word-of-mouth and networking. This is inadequate risk data is compounded by the fact that they do not feel secure with their ability to collect on late loans, all of which results in a strong preference for relationship-based lending. They tend to prefer male signatories, cash or highly liquid collateral, and small short-term loans over long term loans for capital/asset purchases. Their main goals are to select accountable borrowers and generate revenue through their services. They are also looking into integration with mobile banking as they are losing market share to it.

### **Vocational School**

Agriculture Technical and Vocational Education and Training (ATVET) Schools supply technical and hands-on training to students who want to continue their education beyond secondary school. Most ATVETs are state funded and managed, but there is a minority of privately run institutions (Davis et al. 2007). Based on several case studies conducted by the International Food Policy Institute, Koletta ATVET College was established as the personification of the vocational school.

Koletta ATVET College was established in 1994, and like many other ATVET colleges, it is enrolled beyond its ideal capacity. The college seeks to prepare each of their 32 students to work for a medium-large agro enterprise, to start their own, or to go on to university to study policy. They are funded and managed by the regional government, but have their own dedicated staff. Because of their strong ties to the regional government, status, capacity building, and relationships are very important. A recent evaluation of their programming led to a recommendation that they expand their curriculum to include more marketing, supply chain, and management education. In addition to the recommendations, Koletta College is always seeking to



expand their programming within the bounds of their budget and is always looking for new technologies.

### **Non-Governmental Organization**

Agricultural Non-Governmental Organizations (NGOs) operate to advance their social mission. The scope of NGO missions, even within the agriculture sector, vary widely. Many NGOs focus on policy and governmental capacity building while others focus on market linkages and business strategy. Others focus on individual farmers and increasing the efficiency of agricultural operations. Ag. Co. International was selected to personify this last type of agricultural NGO because many agriculture technology products/services will be more attractive to NGOs with direct business-to-consumer models. Insight into their operation was gleaned from the missions and interactions of several multinational NGOs operating in Sub-Saharan Africa.

Ag. Co. International seeks to address issues of food security, nutrition, and agricultural development. They advance their mission by working with smallholder farmers and farmer's associations to improve their crop yield, crop quality, and income. They are heavily donor dependent and derive their operational budget from private donors and public grants from the UN's World Food Program and others like it. One of their strengths and goals is relationship building in the field. They have built long standing relationships with the Ministry of Agriculture, other NGOs, universities, and various local partners. They also have key resources like vehicles for transportation, storage facilities, and housing. Their key motivations are their obligations to donors, their beneficiaries and advancing their social mission.

Full versions of all personas can be found in Appendix A.

### **Limitations of Pre-Generated Stakeholder Personas**

There are certainly limitations to using pre-generated stakeholder personas within the journey mapping workshop. They do not directly represent all possible niche stakeholders that could be involved in an ag tech venture's journey, rather they are based on the larger groups of stakeholders identified in Suffian et al's publication *Agricultural Technology Commercialisation: Stakeholders, Business Models, and Abiotic Stressors* (2013). All niche stakeholders likely fall into one of the primary or secondary stakeholder groups, but there is still room for error which should be recognized early on.

Secondly, all stakeholder personas are created as archetypes of their stakeholder group and do not necessarily accurately represent individuals. If used as the sole reference for the abiotic stressors and dynamic variables represented by a stakeholder group, they have the potential of promoting a closed worldview to new social entrepreneurs. A critical element of the journey mapping workshop is clearly noting the limitations of the personas and crafting an individualized plan for broadening the scope of the venture-team's research into their individual stakeholders. The personas are crafted as a starting point and are not intended to stand alone out of context.

## **Chapter 5**

### **Persona-Based Stakeholder Journey Mapping**

By studying the strengths of existing customer journey mapping practices, a new tool based on stakeholder personas was designed to address the specific needs of new social entrepreneurs. The first generation of the journey mapping exercise is designed exclusively for ag tech ventures in Sub-Saharan Africa and is delivered via a two hour workshop where students work in venture-teams and ultimately produce a visual representation of how their venture functions in context. Teams are guided through the process of defining their venture, understanding their addressable market, reviewing stakeholder personas, and creating the visual map. Persona-based stakeholder journey mapping is effective because it focuses on the unique context around a particular ag tech product/service and takes into account the abiotic stressors at play in those relationships. Stakeholder journey mapping focuses on both the static and dynamic elements inherent in interactions with all stakeholders.

Workshops are conducted in the following parts:

#### **Workshop Methodology Step 1: Establishing a Baseline**

To set the context for the mapping exercise, participants are asked to outline a brief baseline for their ag tech product or service by completing the form outlined in Table 3. This ensures that all participants approach journey mapping from an established consensus.

Table 3: Baseline Questions

<i>Ref #</i>	<i>Question:</i>
1.	<b>Venture Description</b> (name, location where venture is headquartered, current stage in the business lifecycle)
2.	<b>Market Opportunity</b> (unmet needs, opportunities, or market trends that the ag tech product/service seeks to address)
3.	<b>Products or Services Offered</b> (ag tech products or services your venture offers/plans to offer, location of product/service offering)

### Workshop Methodology Step 2: Selecting Key Stakeholders

The first active step in the stakeholder journey mapping workshop is for the venture team to debate and decide which key stakeholders are implicated in the design, production, and delivery of their ag tech product or service. Teams are given the collection of pre-generated stakeholders and asked to create three piles of personas: one of potential end-users for their product/service, one of key stakeholders who will not be end users, and one of personas who do not apply to their venture. The complete collection of personas can be found in Appendix A and is also listed below (Table 4):

Table 4: Stakeholder Personas

<i>Ref #</i>	<i>Persona Title</i>
1.	Smallholder Farmer
2.	Production-side Agro Entrepreneur
3.	Processing-side Agro Entrepreneur
4.	Distribution-side Agro Entrepreneur
5.	Supply Cooperative

6.	Marketing Cooperative
7.	Marketing Agency
8.	Financing Agency
9.	Vocational School
10.	NGO

### **Workshop Methodology Step 3: Researching End-User Segments, Static Variables**

In order for an agricultural technology product or service to be successful, venture teams must develop a clear understanding of end-user segments. Gaining an accurate understanding of the end-user segments is a critical aspect in a product/service's design, business strategy, and implementation strategy. Product specifications, pricing, distribution and promotion can all shift according to the needs of specific market segments, and may not be the same across regions. Defining the individual end-user segments early on avoids late-stage adjustments that can be costly in terms of time and money. While there is no replacement for meeting with end-users and performing deep-dives or ethnographic studies, new entrepreneurs often do not have the resources or expertise to conduct these kinds of intense studies. A more appropriate way to start is to simply understand the static elements of their individual end-user segments.

The static elements of a venture's context represent the facets of geographic and demographic variables that do not change in the short-term. Understanding these elements is critical to understanding customers' physical environment and the quantifiable information about who they are. New social entrepreneurs who can successfully define the static variables at play in their ag tech product/service's context are better equipped to create meaningful and addressable customer segments, and therefore business plans that are more likely to succeed.

Additionally, geographic and demographic data is relatively easy and inexpensive to locate and analyze, and students can complete the entire process quickly and without leaving their host country.

For each geographic location where the team will be offering their ag tech product/service, they are asked to define the following geographic variables (Table 5). This information will be related to their end-users and will further customize and relate the personas to their venture. For example, individuals' personas include no standardized information about the language spoken, but after a team defines the language spoken in their geographic area, that information is connected to the individual and they begin to come to life. Likewise, while organizations' personas (i.e. the marketing agency, cooperatives, or financial agencies) only capture the identity of a single operation, the team can identify the density and diversity of related organizations in the area once they define their geographic variables.

**Table 5: Geographic Variables**

<i>Ref #</i>	<i>Variable</i>
1.	<b>Geographic Area Served</b> (country, province, district, city)
2.	<b>Language</b> (how your customers communicate, ease, cost, and availability of translators)
3.	<b>Currency</b> (currency name, conversion rate, stability, common payment method)
4.	<b>Population Density</b> (urban, suburban, rural, total population if possible)
5.	<b>Nature of Retail</b> (web-based vs. brick & mortar, mall, strip-mall, market, door-to-door, fixed-price, barter)
6.	<b>Quality of Transport Infrastructure</b> (quality, efficiency, reliability, and cost of commercial transportation, i.e. how easily teams will be able to transport goods/services to retail or end-user, quality of private transportation, i.e. how easily does a team's retailers/customers move about)
7.	<b>Quality of Communication Infrastructure</b> (quality of advertising platforms, telecommunications, internet, etc.)

After teams identify the geographic variables related to their ventures, they are asked to define the following collection of demographic variables for each persona they selected as either a stakeholder or a potential end-user (Table 6). A set of retail demographic variables are offered for organizational personas (i.e. personas that reflect a business, appropriate for business-to-business sales) (Table 7).

**Table 6: Demographic Variables, Individuals**

<i>Ref #</i>	<i>Variable</i>
1.	<b>Age</b> (age range)
2.	<b>Income</b> (income range)
3.	<b>Gender</b> (male, female, transgender, other, all)
4.	<b>Occupation</b>
5.	<b>Family Status</b> (single, married, divorced, children, head of household)
6.	<b>Education Level</b> (specific level or range)
7.	<b>Cultural Orientation</b> (membership to an ethnic/religious group)
8.	<b>Asset Ownership</b> (home, land, cattle-- what is indicative of wealth and status?)

**Table 7: Demographic Variables, Businesses**

<i>Ref #</i>	<i>Variable</i>
1.	<b>Sector</b>
2.	<b>Years in Operation</b>
3.	<b>Total Revenue</b>
4.	<b>Reach</b> (primary and branch locations)
5.	<b>Nature of Engagement</b> (licensing a ventures technology, etc.)
6.	<b>Method of Payment</b> (how they will make payments, over what time period)

#### **Workshop Methodology Step 4: Defining End-User Segments**

While it is critically important for new social entrepreneurs to understand as many of their end-user's geographic and demographic variables as possible, in order for segmentation to be a useful tool, teams will need to determine which of the possible end-users represent addressable segments. Teams are asked to come together with the information they have collected to look for trends, then debate and decide which stakeholder(s) they will choose as their total addressable market. They are asked to ensure that end-user segments are large enough to sustain their ag tech product/service economically and that they are feasibly reachable.

After making decisions, the team is then asked to create a definition for their end-user segments by choosing the static variables (both geographic and demographic) that best capture their strategy. Teams may use as few or as many variables in their definition as they like, but they must ensure that their end-user segments are (1) definable, meaning that they should include enough detail so they describes a collection of people with specific characteristics in common, and (2) meaningful, so that each variable chosen relates to the interests, needs, and ability of their end-user segment to buy.

#### **Workshop Methodology Step 5: Referencing Stakeholder Personas, Dynamic Variables**

After teams determine the static variables that define their interactions with all their related stakeholders and define their end-user segments, they are encouraged to more deeply explore how their stakeholders think and behave by examining the dynamic variables inherent in their interactions. The dynamic elements of a venture's context are represented by the psychographic and behaviorgraphic variables that change frequently in the short term. Understanding these variables allows students to gain insight into how their customer segments



and stakeholders think and behave. This is a critical part of venture development because it's these elements that define the needs, motivations, and purchasing habits of stakeholders. New social entrepreneurs who understand the dynamic variables of their ventures' context are more likely to generate an empathetic connection with their stakeholders, and are in a better position to evaluate their own agricultural technologies as they develop, create meaningful value propositions, and generate appropriate market penetration strategies.

Despite the enormous benefits of understanding a venture's context in terms of dynamic variables, dynamic data is extremely difficult to generate. To this end, teams are asked to study the pre-generated stakeholder personas they chose in Step 2, and to connect them to the static variables they collected in Step 3. This allows venture teams to simultaneously accelerate the knowledge gathering phase and customize insights into their specific ag tech product/service. Each member of the team is then asked individually (or in pairs) to empathetically assume the identity of specific stakeholders and carry the persona forward throughout the rest of the journey mapping workshop.

### **Workshop Methodology Step 6: Creating the Journey Map**

New social entrepreneurs can use journey mapping at any stage in the venture lifecycle (Figure 5). In the idea and design phase, before a pilot program has been launched, a journey map can be created using predicted data and used as a way to: (1) identify key stakeholders, (2) define strong value propositions for each stakeholder, (3) determine stakeholders' real and latent needs, (4) recognize key touch points and pain points and (4) develop appropriate market penetration strategies. Accordingly, the insights generated from the journey mapping workshop can be used to evaluate and validate proposed business and implementation plans or as the foundation for new plans.

If used during the pilot, launch and implementation phases, or during the mature business operations phase, stakeholder journey mapping can take advantage of real stakeholder data to accomplish the same missions or to compare the team's perceptions of how their venture functions to reality. Journey mapping is also of use to ag tech ventures functioning at full maturity (although it is unlikely that a team of new social entrepreneurs would be engaged at this level) to determine new opportunities for improvement, growth, and reinvention.

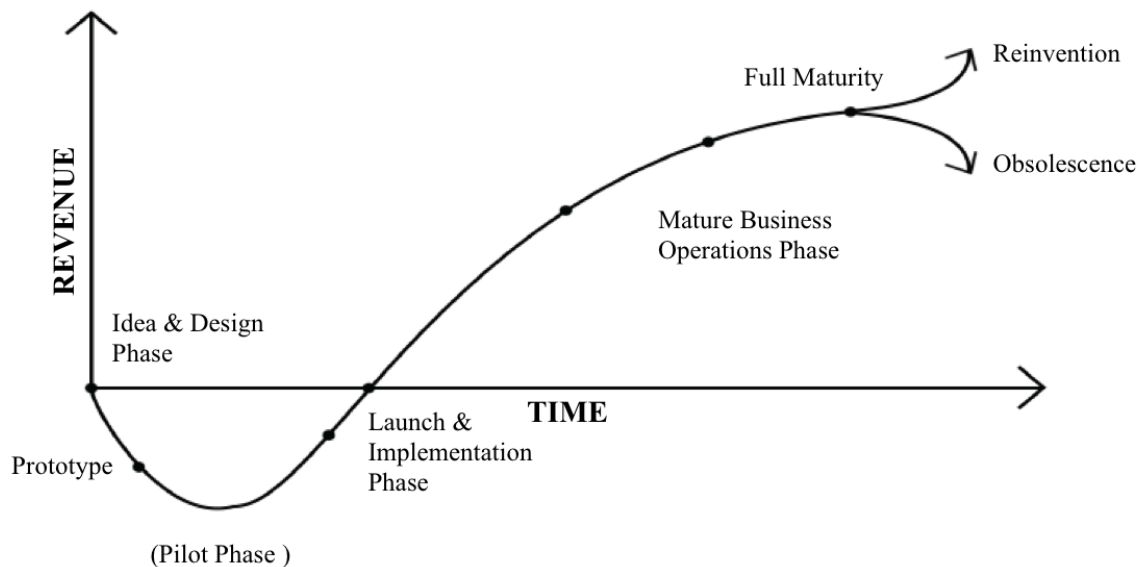


Figure 5: Venture Lifecycle, Adapted from Norman (1998)

The persona-based stakeholder journey mapping workshop itself is designed for new social entrepreneurs at the first stage of the venture lifecycle: idea and design. Teams are asked to empathetically assume the identity of individual stakeholders based on the static and dynamic variables inherent in the personas and to create the journey mapping visual through their eyes. They are given a journey map template (located in Appendix B) which separates the journey into several phases: (1) awareness, (2) information gathering, (3) decision making, (4) purchase, and (5) after sales. This gives social entrepreneurship students and new social entrepreneurs a

framework in which to organize their ideas. Several maps will need to be created: one for each market segment defined in Step 5 (which will encompass the needs, contexts, and stressors of multiple personas), and one for every unique stakeholder. The teams are then asked to determine the remaining elements of the map (Table 8).

**Table 8: Elements of the Stakeholder Journey Map**

<i>Step #</i>	<i>Title and Explanation</i>
1.	<b>Define Goals</b> (for each phase indicate the stakeholder's goals in appropriate box)
3.	<b>Define Touchpoints</b> (for each phase define each possible way that a stakeholder could accomplish their goal)
4.	<b>Define Pain-Points and Opportunity-Points</b> (for each touchpoint, decide if it represents a pain-point or an opportunity-point for the venture. When using predictive data, many touchpoints will be both pain-points and opportunity points)
5.	<b>Define Causation</b> (for each pain-point or opportunity-point define why it is classified as either of those points, or both of those points)
6.	<b>Indicate Action Steps</b> (indicate actions that can rectify pain-points or increase the likelihood of a single point for becoming an opportunity-point)

### **Workshop Methodology Step 7: Analyzing the Map**

The stakeholders' journeys, as reflected through the maps, give important insight into the value propositions, product design, business development, and implementation strategies needed for success, but the results still need to be analyzed and clearly recorded. Members of the venture-teams, still assuming their personas, are asked to come together to discuss the questions laid out in the validation questionnaire (Table 9) (Fleishman et al., 2010).

Table 9: Validation Questionnaire

<i>Ref #</i>	<i>Question</i>
<b>Concept Validation</b>	
1.	Does your persona understand your product/service?
2.	Does your persona think your venture will be successful in the ir context?
3.	Does your product address the need you designed it to address?
4.	Can your persona afford your product/service?
<b>Technology Validation</b>	
1.	Is your product/service actually better and cheaper than what your persona currently has? If so, by how much?
2.	Will you have access to the technology/ infrastructure/ resources you need to be successful? Is it reasonable?
3.	Do people have the technical background needed to access your product/service?
<b>Market Validation</b>	
1.	Does your product/service <u>really</u> solve a <u>real</u> problem?
2.	Do enough people care about your product/service for your venture to be economically sustainable?
3.	Is your market reachable? Physically? What about promotion?
4.	Do you really have a competitive advantage? What is it?
5.	Will your income be consistent/seasonal; can your venture sustain itself?
6.	How much room is there to scale?
<b>Usability</b>	
1.	How easy is it for your persona to become aware of your product/service?
2.	How easy is it for your persona to gain access to your service?
3.	How easy it is for your persona to dispose of your product /unsubscribe from your service?
4.	How easy is it for your persona to repurchase/repair?

## **Chapter 6**

### **Testing and Evaluation**

Preliminary testing of the persona-based stakeholder journey mapping workshop was delivered to three separate social entrepreneurship student teams all organized around the same innovation: an affordable greenhouse venture poised for launch in Sierra Leone. The workshops required two – two and a half hours each to complete and were completed in two sessions. The first session included a single four-person team, and the second session included two teams of five to seven people working simultaneously. The workshop was adjusted between the first and second sessions which provided some critical insight into the design and delivery of the workshop. The final result can be found in full in Appendix C.

#### **Key Learning Objectives**

The persona-based stakeholder journey mapping workshop was designed as a level two business planning tool which would help social entrepreneurship students and new social entrepreneurs to directly: (1) identify stakeholders and potential end-users, (2) gain an understanding of the abiotic stressors and contextual elements that impact the stakeholders' decision making and purchasing habits, (3) define their venture's possible touchpoints for all stakeholders, (4) predict pain-points and opportunity-points, and (5) develop action strategies to avoid failure. It was further intended that deeper reflection into the direct insights would enable social entrepreneurs to: (1) articulate clear value propositions for each addressable market segment and stakeholder, (2) identify market penetration and partnership strategies.

Initial feedback from participants indicated that the personas, while not a replacement for in depth ethnographic strategies, did provide enough insight into the static and dynamic variables

inherent in the lives of specific stakeholders to be an effective tool in terms of stakeholder selection, market segmentation, and the identification of touchpoints, pain-points, and opportunity-points. Workshop participants in every team indicated that the personas were a unique and helpful part of the workshop and enabled them to uncover new insights. Additionally, teams were asked if they could identify what their ventures' value propositions were for each stakeholder at the beginning and end of the work shop. All three teams demonstrated an increased understanding of their ventures' market segments and value propositions by the end of the work shop. Finally, although the first team identified its stakeholders and end users and used that choice throughout the work shop, the second two teams made changes to their original stakeholder/end-user selections as they uncovered more information.

### **Preliminary Best Practices:**

Based on testing from the three teams, preliminary best practices are set as: (1) a team-oriented delivery, (2) the inclusion of clear examples and rationale, and (3) the inclusion of a blank "map template".

#### **Team-Oriented Delivery**

As is the case with customer journey mapping, a team-oriented delivery is key to the success of the stakeholder journey mapping workshop. Teams consistently cited the usefulness of debate and collective decision making as well as the increased capacity for research within the workshop. The ability of teams to delegate tasks to certain members kept the workshop within an acceptable time frame and had the additional benefit of creating consensus over "action steps"

and venture strategies. None of the participants involved in any of the workshops recommended stakeholder journey mapping as an individual activity. Beyond that, the two teams that completed the workshop separately but simultaneously in the same room cited a higher level of satisfaction with the creative atmosphere of the workshop. This suggests that that the workshop could be delivered to multiple teams at once making it effective in either a group classroom or a weekend workshop setting.

### **Clear Examples and Rationale**

The need for clear examples at each step in the workshop arose from the first team to participate. The workshop was augmented with several examples prior to delivery to the other two teams. The last two teams consistently had fewer questions, were clearer on their trajectory, and felt more confident moving forward without guidance than did the first team. The first team also cited a general lack of understanding about the purpose and nature of the segmentation step. The rationale behind this step was clearly explained to the second two teams who used the segments as intended in the creation of their final map.

### **Map Template**

The final addition to the workshop between the first and second sessions was the inclusion of a blank editable journey map template (rather than a static and complete example) which can be found in Appendix B. The first team produced a final map that clearly aligned with the example provided to them and struggled with formatting during the workshop. By providing the second two teams with a blank and editable template, their ideas were not influenced by the information provided by an example, and they were not held back by formatting difficulties. The

final blank template is endlessly expandable and the teams who used it were pleased by its usability. They expressed little confusion about its purpose and expressed a favorable opinion about its usefulness as a tool.

### **Further Testing**

Although the persona-based stakeholder journey mapping workshop was successful in preliminary tests, further testing is needed to validate its success as a level two empathy-based business/product development tool in the ag tech space. Another phase of preliminary testing should be dedicated to the written workshop methodology (Appendix C), the stakeholder personas (Appendix A), and the blank journey map template (Appendix B). Because of its close relation, current customer journey mapping practitioners should be consulted about the delivery of the workshop, and those findings reflected in a second or third generation of the tool. Ultimately, it is expected that a full review of the workshop would be conducted in a structured environment. One of the main questions moving forward is around the personas. It should be clearly determined that the personas do not push students and new social entrepreneurs to generate closed world assumptions about ag tech stakeholders based on the general nature of the individuals and organizations featured in the personas.

### **Conclusion**

While more testing needs to be conducted to determine the definite strengths and weaknesses of persona-based stakeholder journey mapping, the workshop appears to be of value to social entrepreneurship students in the agricultural technology space. Preliminary testing suggests that the workshop can accomplish its direct and indirect goals of: (1) stakeholder and



potential end-user identification, (2) promoting an understanding of important abiotic stressors and contextual elements (3) touchpoint identification, (4) pain-point and opportunity-point prediction, (5) action strategies development, and (6) value proposition definition. Further, the workshop may also help participants develop market penetration and partnership strategies, but this finding was neither directly supported nor contradicted.

If proven a successful tool, the applications of persona-based stakeholder journey mapping can expand as the field of social entrepreneurship grows. Stakeholder journey mapping, as an empathy-based level two planning tool, need not be limited to the agricultural technology space in the long term. Stakeholder groups can be identified for most fields and correlated to key stakeholders involved in those groups via the process delineated in Chapter 4. With effort, personas can be generated for the key stakeholders identified, and the workshop can be easily adapted to accommodate ventures from different fields. Ultimately, it is hoped that persona-based stakeholder journey mapping can help social entrepreneurship students and new social entrepreneurs across all disciplines create successful ventures that can create social value and contribute to the achievement of the millennium development goals and improve the human condition worldwide.

## **Appendix A**

Full collection of stakeholder personas. For best results print on legal-sized paper.

# Smallholder Farmer

*“Smallholder farmer, head of the household & mother of six”*

## A Day in the Life

Blessing, the head of her household and mother of six, lives in a rural village and earns money through smallholder farming. Every morning, she gathers water, then returns home to help her oldest daughter cook a small meal, do the wash, and care for the family’s chickens and goats. She then sends her younger children to school. When she is not working the small plot of land where she grows pineapples, she is at her home where other women gather, gossip, and socialize. She sells her pineapples locally, and though she would like to expand doesn’t have the know-how or credit needed to do so.



**Blessing, N.**

Female, 35

Married, 6 children

## Personality

### Traits/Attitudes

Hard working, family oriented, happy, welcoming, loves to laugh, gossip, and dance. She identifies strongly with her community, but is very welcoming to outsiders.

### Goals

Expand her farming operation (in size or diversity of crops) to generate additional income and improve her family’s nutrition. She would also like to purchase a water system and a blender for her home.

### Motivations

Religion (Christian), her husband, children, new baby, community membership, and future purchases.

## Purchasing Habits

### Location/Travel

While there is one small shop in Blessing’s village, it only sells bottled soft drinks and packaged foods. Blessing makes most of her purchases from traveling saleswomen who pass by her home (many of whom are from her community). When something specific is needed she asks one of her children to get it.

### Finances & Decision Making

Although Blessing’s husband controls the household’s finances, Blessing decides on the family’s frequent purchases and she and her oldest daughters are in charge of procurement. Blessing’s income is very low so she faces extreme financial constraints and cannot access credit.

### Purchasing Patterns

Because Blessing depends on agriculture for her income, she makes yearly purchases of agriculture inputs for her farm. Her other cyclical purchases revolve around her children’s schooling. She is fairly risk adverse in purchases and does not try new products frequently.

## Education, Skills, & Training

Blessing went to school through second grade, and has learned her farming techniques from her mother and other community figures and has been farming the same way for years. She does not use irrigation or fertilizer on her land. She learns most of her new skills from her sister who lives next to her with her own family and also farms. Trust and relationships are extremely important.

## Design Criteria

### Must:

- Low-cost
- Ease of procurement/delivery
- Easy to use/intuitive
- Beneficial for overall family
- Status appeal (cannot detract from social status)
- New products must come from trusted source
- Large projects need approval of Chief, ceremonial start
- Religiously benign

### Must Not:

- Reference to counter culture/stigmatized activities
- Interfere with time dedicated to other activities
- Require technical expertise
- Require knowledge of English
- Interfere with household dynamic (children, and livestock run free)
- Require purchases in bulk

## Production-Side Agro-Entrepreneur

*“Owns 4 hectares of land, employs 4, eager to expand operations”*

### A Day in the Life

Hadiya lives outside a small town with her mother, sister, husband, 2 nephews, and 2 children. After a small meal in the morning she walks to her 4 hectare plot of land where she manages a farming operation. She employs 4 community members (3 women and 1 man), and grows pineapples, green beans, yams, and tomatoes. She recently installed a small irrigation system on her land and attends farming workshops whenever they are available at nearby community centers or churches. She hopes to expand her farm, increase crop variety, and ultimately hire more people.



**Hadiya, M.**

Female, 30

Married, 2 children

### Personality

#### Traits/Attitudes

Hard working, future-oriented, values family and community, prefers to minimize risk but is open to trying new things, eager to learn.

#### Goals

Expand her farming operation so that she can hire more workers. Wants to send her children to secondary school and to financially help her sister and nephews.

#### Motivations

Religion (indigenous), her husband, family, learning new things, the success of her business, improving employment opportunities in her community, success and recognition.

### Purchasing Habits

#### Location/Travel

Hadiya travels often to a regional market about an hour away from her small village to sell the produce from her farm. She prefers to make sales herself and makes some personal purchases while in the bigger town.

#### Finances & Decision Making

Although Hadiya's farm is doing well, she does not have the equity needed to get her own line of credit. This significantly limits risk-taking because her mother, sister, and husband have sway over purchasing decisions. Hadiya's mother and sister make the majority of household purchases.

#### Purchasing Patterns

Many of Hadiya's purchases are cyclical according to the agricultural inputs she needs. She has some difficulty saving her money, but normally has enough to afford some investment in her farm post-harvest.

### Education, Skills, & Training

Hadiya went to a local school through the 6<sup>th</sup> grade and originally learned about farming from her uncle. She has attended some vocational training programs sponsored by the State and NGOs at nearby community centers and churches and always attends new workshops to learn more and to show her success to other attendees. She learns fast and is open to new things.

### Design Criteria

#### Must:

- Low/mid-cost (or credit assistance)
- Be regionally accessible
- Include a training element
- Beneficial for overall business/community
- Status appeal (cannot detract from social status)
- New products must come from trusted source
- Large projects need approval of Chief, ceremonial start
- Culturally benign

#### Must Not:

- Reference to counter culture/stigmatized activities
- Interfere with household dynamic (she doesn't make decisions alone)
- Require purchases in bulk
- Require purchase immediately before planting

## Processing-Side Agro Entrepreneur

*“Adds value to raw agricultural products”*

### A Day in the Life

Jane lives with her mother, sister, husband and three children in a small home in a mid-sized town. She has a small informal business where she purchases raw peanuts, roasts them and sells them at market. By roasting the peanuts, she prevents them from molding or spoiling before they can be sold. Although there are many other women roasting and selling peanuts, Jane has been successful because she is a highly respected member of the community and relationships are key to sales. She recently began buying more raw peanuts to expand her business, and her oldest daughter and sister now work for her. She hopes to expand further in the future.



#### Jane, T.

Female, 27

Married, 3 children

### Personality

#### Traits/Attitudes

Business-oriented, family/community focused, proud, busy.

#### Goals

Provide for her family, remain active in her community, grow business to include more employees, increase sales.

#### Motivations

Wellbeing of family and community, continued patronage of peanut farmers, expanding her business, religion.

### Purchasing Habits

#### Location/Travel

During the peanut harvest, Jane travels by foot to many different small farms to purchase large sacks of raw peanuts. She roasts them near her home and travels to a larger town to sell them at market. She makes the majority of her own purchases locally and at the larger market.

#### Finances & Decision Making

Jane makes all the financial decisions regarding her own business, however her husband and mother are strong influences in other parts of her life. Her husband and mother largely control the household's finances.

#### Purchasing Patterns

Jane must make cyclical purchases of raw peanuts (upon harvest/availability) and packaging inputs. Her income is irregular because she rarely sells all her goods in a single day, and many times she spends the money she does earn within a week on household goods.

### Education, Skills, & Training

Jane went to primary school and the first two years of secondary school in her town. After that, she learned her current trade from watching others. She has gotten business experience as her small business has grown but does not normally attend workshops or training sessions.

### Design Criteria

#### Must:

- Be credible, trusted
- Be respectable
- Add to status in community
- Include training
- Not require formal education
- Culturally appropriate

#### Must Not:

- Require an upfront payment greater than the total funds available
- Reference to counter culture/stigmatized activities
- Interfere with business dynamic
- Interfere with family
- Conflict with branding/other strategies
- Conflict with new/growing external relationships

## Distribution-Side Agro Entrepreneur

*“Purchases and trades agriculture goods, creates market linkages”*

### A Day in the Life

Ngozi lives outside a major urban center with his wife and three children. In the morning he drives his truck to rural areas to meet with farmers, barter, and purchase crops or other agricultural goods. Many farmers depend on him for market linkages. He has a large business network and uses his two cell phones to keep in constant contact. He is an excellent salesman and in the afternoon he sells his goods in bulk to other wholesalers in the urban markets near his home. He is always looking to expand his network and is interested in new profitable ventures.



**Ngozi, K.**

Male, 28

Married, 3 children

### Personality

#### Traits/Attitudes

Busy, profit focused, understands trade and the market, great salesman, adaptable, charismatic, learns quickly, risk-taker, optimist.

#### Goals

Maximize profits, provide for family, expand business network, recognition, success.

#### Motivations

Wealth and wellbeing, family, success, notoriety.

### Purchasing Habits

#### Location/Travel

Ngozi travels daily between rural areas and the urban market near his home. He has access to many kinds of shops and markets.

#### Finances & Decision Making

Ngozi's cash flow is irregular, so he has put some money aside for his family. He could access credit if he wanted to, but has not borrowed yet. He controls the household's finances and makes major decisions but his wife makes all household purchases.

#### Purchasing Patterns

Because Ngozi is optimistic about the success of his business, he spends money as he earns it. This leads to cyclical spending with big purchases being made during the harvest season and smaller purchases being made in between. He does have some savings and makes sure to pay school fees on time.

### Education, Skills, & Training

Ngozi went to primary and secondary school in the town where he was born. He can write well and is good at math. He learns very quickly and picked up his trade by watching others. He isn't eager to attend additional training workshops/classes, but will go to build his network and to benefit his business.

### Design Criteria

#### Must:

- Portable/ease of travel
- Accessible in his area
- Strengthen his business
- Status appeal (cannot detract from social status)
- New products must come from trusted source
- Culturally benign

#### Must Not:

- Reference to counter culture/stigmatized activities
- Interfere with household dynamic
- Require a significant time commitment



# Supply Cooperative

*"Farmers working together and sharing access to agricultural inputs"*

## Operational Overview

This small supply cooperative currently has 12 members but Joseph, who manages the day-to-day operations, wants to expand. Each member owns their own plot of land and works every day at their own pace. Members of the cooperative have the benefit of buying agricultural inputs (like seed and fertilizer) at bulk prices. In the future, Joseph wants to host training workshops and find which kind of irrigation system he should install on his plot of land. Cooperative members grow different crops, but in general they grow corn, cabbage, tomatoes, peppers, and peas. They sell their produce at local/regional markets.



**Bolah, H.** f, 23

**Sanu, A.** f, 31

**Mary, N.** m, 26

**Pemina, L.** f, 24

**Lucy, M.** f, 25

**Joseph, K.** m, 28

**Sam, A.** m, 22

**Shani, C.** f, 32

**Fudu, K.** m, 27

**Dede, M.** f, 25

**Akoko, N.** f, 26

**Mia, T.** f, 30

## Organizational Dynamic

### Traits/Attitudes

Member-owned, community-oriented, dynamic, willing to try new things, eager to learn, shared-risk.

### Goals

Increase members' profits, learn new agricultural practices, expand operations.

### Motivations

Community, trust, relationships, growth potential, helping one another, learning, increasing productivity.

## Purchasing Habits

### Location/Travel

Cooperative meetings are located at a central location but members work on their own land which could be up to an hour away by foot. Although the cooperative can make bulk purchases in more urban areas, members still grow and sell their produce locally because market linkages in terms of sales are still weak.

### Finances & Decision Making

Because the cooperative is member-owned, each farmer must contribute consistently. Large purchases (like equipment) are debated at length, but ultimately Joseph makes the purchases. Members trust each other and generally make decisions that are best for the group.

### Purchasing Patterns

Joseph, the operations manager, makes large purchases of seed and fertilizer at the beginning of the growing season to service the entire cooperative. For weeks after the cooperative has little money to spend. When crops are harvested there is more money and at times he is able to make investments.

## Education, Skills, & Training

Joseph attended primary school, secondary school, and an agricultural vocational school. The rest of the members completed varying levels of schooling but because risk is shared within the cooperative, more are willing to take risks, receive additional training, and try new things.

## Design Criteria

### Must:

- Be flexible about funding
- Be able to be shared among members equally
- Be modular
- Be durable
- Advantageous for the community
- Include communal training/orientation
- New products must come from trusted source
- Culturally benign

### Must Not:

- Require an upfront payment greater than the total funds available
- Reference to counter culture/stigmatized activities
- Interfere with cooperative dynamic
- Require formal education/training

# Marketing Cooperative

*"Farmers working together to pack, market, and distribute crops"*

## Operational Overview

This relatively new cooperative is small, having only 11 members but Aya, the leader, has great aspirations. All the members live in the same geographic area and most grow cabbage, beans, and carrots. Before joining the marketing cooperative members harvested, transported, and sold their produce individually, but after joining the cooperative such activities are well coordinated. Farmers get a better price for their crops and to Aya's satisfaction, they have recently gained the attention of a distributor who wants to buy cabbage from them in bulk.



**Jacob, A.** m, 26      **Manuel, M.** m, 22  
**Aya, N.** f, 34      **Nadia, K.** f, 30  
**Rowan, H.** f, 25      **Hana, K.** f, 27  
**Marie, L.** f, 31      **Peter, W.** m, 25  
**Blessing, N.** f, 27      **James, T.** m, 30  
**Joseph, K.** m, 28

## Organizational Dynamic

### Traits/Attitudes

Member-owned, community-oriented, business drive, willing to take some risks, willing to try new things, eager to learn, eager to grow, shared-risk.

### Goals

Increase members' profits, learn how to better package, market, transport/distribute products, streamline the farm-to-market value chain.

### Motivations

Business, improving recognition/status, trust, relationships, growth potential.

## Purchasing Habits

### Location/Travel

All Farmers operate within a 30 minute walk from one another. They meet at a central location to discuss business, and travel there by foot. One member of the cooperative takes produce to market, but the rest travel infrequently. As the new relationship with the distributor develops, members will travel even less.

### Finances & Decision Making

The cooperative is member-owned so each farmer has responsibilities to the whole. All new marketing strategies are discussed and agreed upon by consensus, but Aya is the clear leader.

### Purchasing Patterns

Individual farmers are responsible for their own purchases and savings patterns, but Aya manages the group's finances and makes seasonal investments around harvest and planting.

## Education, Skills, & Training

Aya only attended a formal school until age 9, but likes going to free worships and training sessions whenever she can. The other members have varying degrees of education but are generally familiar with basic business and marketing concepts. They like going to workshops as well, but are better encouraged with some type of incentive.

## Design Criteria

### Must:

- Be flexible about funding
- Be able to be shared among members equally
- Be modular
- Be durable
- Advantageous for the community
- Include communal training/orientation
- New products must come from trusted source
- Culturally benign

### Must Not:

- Require an upfront payment greater than the total funds available
- Reference to counter culture/stigmatized activities
- Interfere with cooperative dynamic
- Require formal education/training
- Conflict with branding/other strategies
- Conflict with new/growing external relationships



# Marketing Agency

*“Sources products, identifies markets, optimizes marketing mix”*

## Operational Overview

K&J Ag. Co. a private marketing agency, was established in 2003 and now employs a total of 14 people and works with over 100 smallholder farmers. The company started with a smallholder contract farming scheme focusing on vegetable production, and has capitalized off growing demand from the EU. The company now owns 2 collection centers with washing, processing, and cold storage facilities. They sell (for wholesale prices) seasonal packages of ag inputs to contracted farmers. Packages include fertilizer, insecticides, and packaging/transporting material. They connect farmers to market by arranging, sourcing, processing, and exporting.



### **K&J Ag. Co.**

Est. : 2003

Employees: 14

## Organizational Dynamic

### **Traits/Attitudes**

For-profit orientation, creates market linkages, works with individual smallholder farmers but prefers working through cooperatives/associations.

### **Goals**

Increase profits, reduce spoilage/crop failure, streamline processing, prevent input theft, earn EU high quality ratings, increase revenue.

### **Motivations**

Good/reliable farmer selection, high production levels on farms, revenue/profit.

## Purchasing Habits

### **Location/Travel**

All contracted farmers operate within a 50 mile radius from K&J's headquarters outside a major city. Depending on the size of the farming contract, farmers are asked to deliver produce to collection points at an arranged time or produce is collected. The company owns 2 large trucks and employees frequently travel.

### **Finances & Decision Making**

Donor support for operations were significant during start-up, but with growth has come increased financial self-sufficiency. Individual employees make decisions in collaboration with the owners.

### **Purchasing Patterns**

K&J Ag. Co. makes large seasonal purchases of the agricultural inputs they include in their packages. They make other purchases year round to maintain and expand their processing facilities.

## Operational Competencies, Education, Skills, & Training

Senior level employees of K&J Ag Co. are well educated and well versed in business transactions. During the start-up phase financial donors made training and education workshops available to them. Mid and lower level employees have varying levels of education, but all employees are competent in agricultural sourcing, production processes, and domestic supply chain.

## Design Criteria

### **Must:**

- Be high capacity
- Meet international health standards
- Be durable
- Include training (if new tech)
- New products must come from trusted source
- Culturally benign

### **Must Not:**

- Require an upfront payment greater than the total funds seasonally available
- Reference to counter culture/stigmatized activities
- Interfere with business dynamic
- Conflict with branding/other strategies
- Conflict with new/growing external relationships

# Formal Financing Agency

*“Provides credit & financial services, earns revenue through interest”*

## Operational Overview

Equity Bank provides credit and financial services to businesses and individuals. Their main sources of revenue are interest charges and fees. The bank offers general deposit and payment services to nearly every business or individual that requests it, but is more conservative about issuing credit. As a financing agency, they prefer working with medium-large enterprises, and rarely lend to small firms or individuals. For lending, they require extensive documentation and prefer cash collateral over land and machinery. They also favor short-term credit over medium to long-term credit for asset purchases.



### Equity Bank

Est. : 2005

Branches: 2

Employees: 15

## Organizational Dynamic

### Traits/Attitudes

Relationship-based lending, tendency toward small short term loans, integrated with community.

### Goals

Increase profits, recruit more bank members (increase demand for services), manage mobile banking integration, establish better crediting system.

### Motivations

Good/reliable borrower selection, minimize defaults, maximize bank members.

## Lending Habits

### Location/Travel

Nearly all employees and members of Equity Bank live and work within a 30 minute walk from one of the bank's two branches. All discussions/business occurs at one of these branches.

### Information Gathering

Equity Bank doesn't have access to a formal credit rating system, so they collect information informally through word of mouth and networking. Relationships, reputation, and trust are key to credit access in this system.

### Lending Preferences

Male signatory, medium-large size, well established, formal structures, cash collateral.

## Operational Competencies, Education, Skills, & Training

Senior level employees of Equity Bank are well educated, but overall accounting competencies of all employees could be stronger. The bank does not offer banking/education classes to employees or members, but all employees are able to answer basic questions.

## Design Criteria (For Financing)

### Must:

- Be credible, trusted
- Be respectable
- Add to status
- Targeted toward medium-large businesses
- High resale value
- Culturally appropriate

### Must Not:

- Require an upfront payment greater than the total funds available
- Reference to counter culture/stigmatized activities
- Interfere with business dynamic
- Conflict with branding/other strategies
- Conflict with new/growing external relationships

# Vocational School

*“Preparing students for jobs in agriculture”*

## Operational Overview

Koletta ATVAT College was founded in 1994 as a collaboration between the regional government and a German NGO. Today it is funded and managed by the regional government, although the main administrators focus their efforts solely on the college. The college currently enrolls 32 students from the surrounding area, 12 above its ideal capacity, and focuses on practical and technical education. The college seeks to prepare students to start or work for medium-large scale agricultural operations or go on to a university to study agricultural extension or policy.



### Koletta ATVET College

Est. 1994

Students: 32

\*ATVET denotes Agricultural Technical and Vocational Education and Training.

## Group Dynamic

### Traits/Attitudes

Funded/managed by regional government, limited resources, focused on the technical side of agriculture.

### Goals

Prepare students for careers/future education, expand programming to include more marketing, supply chain, and management education, expand funding.

### Motivations

Regional government's objectives, students' needs, changing trends in agriculture, new technologies.

## Purchasing Habits

### Location/Travel

Koletta students travel from all distances to attend classes and are responsible for their own transportation. Most of the instruction is done on site, though classes occasionally visit different agricultural operations. Most of the college's purchases are arranged and delivered.

### Finances & Decision Making

Koletta ATVET College is funded and managed by the regional government, and though it manages its own spending, it is tied to a strict budget. The decisions to invest in new technologies or teaching tools has to come from consensus among the administrators.

### Purchasing Patterns

The college makes some steady purchases of basic goods and services, and only occasionally invests in new technologies/teaching tools for their students.

## Operational Competencies, Education, Skills, & Training

The administrators at Koletta are all well educated, and teachers at least have hands on experience in the field. During recent school evaluations, the college was told it should expand its capacities to include agricultural marketing, supply chain, and management (many other colleges received the same advice).

## Design Criteria

### Must:

- Be applicable as a teaching/capacity building tool
- Be able to be shared among members equally
- Be durable
- Advantageous for students
- Include communal training/orientation
- New products must come from trusted source
- Culturally benign

### Must Not:

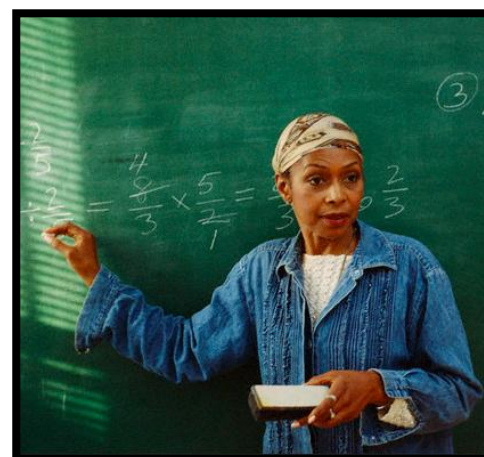
- Require an upfront payment greater than the total funds available
- Reference to counter culture/stigmatized activities
- Interfere with college dynamic
- Require extensive inputs
- Conflict with new/growing external relationships

## Non-Governmental Organization

*“Sources products, identifies markets, optimizes marketing mix”*

### Operational Overview

Ag. Co. International is a U.S. based NGO operating in Sub-Saharan Africa seeks to address issues of food security, nutrition, and agricultural development. They advance their mission by working with small scale farmers to improve their crop yield, quality, and income. They regularly collaborate with national governments, and the United Nations' World Food Program and others like them for funding and programmatic support. They also have built relationships with the Ministry of Agriculture, vocational schools, universities, and local partners. They are always looking to expand into new regions with new value propositions.



#### Ag. Co. International

Est. : 2006

Employees on the Ground: 17

### Organizational Dynamic

#### Traits/Attitudes

Mission-focused, grant/funding seeking, eager to grow, socially minded, team-work oriented, emphasis on partnerships and understanding the context.

#### Goals

Increase food security, improve nutrition, educate farmers, improve farmers' crop yields, increase farmers' income, continue and expand operations.

#### Motivations

Obligations/promises to donors, stakeholders, beneficiaries, social mission, relationship building.

### Purchasing Habits

#### Location/Travel

Ag. Co. employees travel frequently to check on farmers and to offer workshops and demo days. They own several vehicles and are extremely mobile.

#### Finances & Decision Making

Ag. Co. International depends on donations and grants for their operations, but entrusts decision making to regional managers. The NGO is managed fairly horizontally, so there is a lot of freedom as long as spending is within budget.

#### Purchasing Patterns

To maintain their field offices, Ag. Co. makes regular purchases of basic household/office inputs. To support their mission they make seasonal purchases of farming inputs and implements. After receiving large grants they are also likely to make capital investments.

### Operational Competencies, Education, Skills, & Training

Senior level employees at Ag. Co. International are from the United States and have advanced degrees. Some of the in-country staff are local and are also well educated. Extension agents are largely vocational school graduates. Since Ag. Co. hosts training and educational workshops they expect their extension agents to be well educated on the subjects.

### Design Criteria

#### Must:

- (Likely) sold in large volumes
- Meet international safety standards
- Be durable
- Include training (if new tech)
- New products must come from trusted source
- Culturally benign
- Advance mission
- Build capital/credibility with funders

#### Must Not:

- Require an upfront payment greater than the total funds seasonally available
- Reference to counter culture/stigmatized activities
- Interfere with business dynamic
- Conflict with branding/other strategies
- Conflict with new/growing external relationships

**Appendix B**

Blank stakeholder journey map template. For best results print on legal-sized paper.





## Appendix C

### Venture Context Mapping Workshop

In order to create social value (defined here as value that directly caters to basic human needs that remain unsatisfied by current economic or social institutions), social entrepreneurs need a thorough understanding of who their customers are and how they interact with their products over time.

Venture context mapping is a visualization tool that encourages social entrepreneurship students to empathetically connect with the context and stakeholders of their ventures. By thoroughly understanding their stakeholders—who they are, how they think, what they want, and what they can afford—social entrepreneurs can ensure that their ventures create the right kinds of products and services for the right market.

#### Step 1: Establishing A Baseline

To set the context for the mapping exercise, please outline a brief narrative summary of your venture using the format below:

##### 1. Venture Description

- a. Name
- b. Location where your venture is headquartered
- c. Current stage in the business lifecycle<sup>1</sup>

##### 2. Market Opportunity

- a. Unmet needs, opportunities, or market trends that your venture seeks to address

##### 3. Products or Services Offered

- a. Products or services your venture offers/plans to offer
- b. Location(s) of product/service offering(s)

#### Step 2: Selecting Key Stakeholders

While it can be difficult to identify the stakeholders for your venture early on, understanding your key stakeholders is critical to your success. One way to get started is to reference larger stakeholder groups related to agricultural ventures.

The stakeholder personas included with this workshop (and listed with definitions below) represent the ten main groups of stakeholders your agricultural technology product/service will encounter throughout the course of the business lifecycle.

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<sup>1</sup> Venture Lifecycle Diagram (Figure 1) located in Workshop Appendix A

As a team, read and review all ten stakeholder personas. Then, debate and decide which key stakeholders<sup>2</sup> are implicated in the design, production, and delivery of your product/service and select those personas (the personas not selected in this step will not be used in the workshop, you can set them aside). Once your team has selected the key stakeholders for your venture, review the personas you selected once more and decide which personas could be end-users<sup>3</sup> of your product/service and collect them in a second pile.

If your venture follows a business-to-business model rather than a business-to-consumer-model, make a third pile of potential business customers.

The ten possible personas include:

1. **Smallholder Farmer** (Smallholder Farmers produce agricultural goods on a plot of land less than two hectares. They sometimes have access to markets)
2. **Production-side Agro Entrepreneur** (Production-side Agro Entrepreneurs have identified a market for their agricultural products and have expanded farming/production operations to increase their revenue)
3. **Processing-side Agro Entrepreneur** (Processing-side Agro Entrepreneurs generate revenue from the processing of agricultural goods. They add value to the produce created by the Production-Side Agro Entrepreneurs)
4. **Distribution-side Agro Entrepreneur** (Distribution-side Agro Entrepreneurs identify markets for agricultural goods and serve as market linkages between producers and retailers)
5. **Supply Cooperative** (Supply Cooperatives pool resources to support the collective purchase of agricultural inputs such as fertilizer, seeds, and implements)
6. **Marketing Cooperative** (Marketing Cooperatives function to maximize demand for their members' products, and streamline the packaging, marketing, and distribution processes)
7. **Marketing Agency** (A Marketing Agency generates revenue through commission by successfully sourcing products, identifying markets, and optimizing the transportation and storage processes)
8. **Financing Agency** (A financing agency generates revenue through the interest made from loans)
9. **Vocational School** (Training/vocational schools are either supported by government/NGO programs or generate revenue through tuition fees. They provide training to individuals who are interested in acquiring specific skills)
10. **NGO** (An organization that is not affiliated with the government and functions to provide goods or services to advance a specific social mission. NGOs further create and maintain relationships to minimize cost and maximize impact)

## Step 2: Researching Your Market Segments: Geographics

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<sup>2</sup> Stakeholders: an individual or a group of individuals who have an interest in an organization

<sup>3</sup> End-User: an individual or group that ultimately uses/consumers a product/service



Having a clear and accurate understanding of where your venture will operate can dramatically effect your product/services design, sourcing, manufacturing, marketing, sale, and delivery.

For each geographic area<sup>4</sup> your venture works in complete the “Geographic Variables” section below. If your venture only functions in one geographic area, you will only complete this section once.

### 1. Geographic Variables<sup>5</sup>

#### a. Geographic Area Served

- i. Country, province, district, city, etc.

#### b. Language

- i. Language by which your customers communicate
- ii. Will you need translators?
- iii. If yes, what is the ease, cost, and availability of translators?

#### c. Currency

- i. Currency name
- ii. Conversion rate
- iii. Stability
- iv. Common payment methods (check, cash, mobile payments)

#### d. Population Density

- i. Urban, suburban, rural, total population if possible

#### e. Nature of Retail

- i. Where/how will your venture buy inputs?
- ii. Where/how will your product/service be sold?

#### f. Quality of Transport Infrastructure

- i. Quality, efficiency, reliability, and cost of commercial transportation, i.e. how easily will you be able to transport inputs?
- ii. Quality of private transportation, i.e. how easily do your retailers/customers travel to make purchases?

#### g. Quality of Communication Infrastructure

- i. Quality of advertising platforms, telecommunications, internet, etc.

*Reflection: Will any of these geographic variables make it difficult to manufacture and sell your product/service? Will any be an asset?*

### Step 3: Researching Your Market Segments: Demographics

Having an accurate understanding of your venture’s end-user market segment(s) will effect all aspects of your venture including product design, business development, and implementation strategy. Product specifications, pricing, distribution, and promotion can all shift according to the needs of specific market segments. Defining the individual segments and knowing how they compare and contrast to one another is an essential component of understanding your customer and the relationship they have with your venture.

For each potential end-user persona you indicated in Step 2, define the following variables. If they are a business-to-consumer end-user, define “individual demographics”. If they are a business-to-business,

<sup>4</sup> There is no official distance that separates one geographic area from another, it is up to your team to differentiate between areas. A good way to tell that you are dealing with two different geographic areas is to go ahead and try to fill out the “Geographic Variables” section. If you find that answers ‘depend’ you are likely dealing with two or more different geographic areas.

<sup>5</sup> Geographic Variables: the specific location of where your venture seeks to operate and its characteristics

define “retail geographics”. Keep in mind the personas are representative of general stakeholders and will not explicitly capture all demographic variables. Some additional research will be needed.

## 2. Demographic Variables<sup>6</sup>

### a. Individual Demographics

- i. **Age**
  - 1. Age range
- ii. **Income**
  - 1. Income range
- iii. **Gender**
  - 1. Male, female, transgender, other, all
- iv. **Occupation**
- v. **Family Status**
  - 1. Single, married, divorced
  - 2. Number of children or dependents
- vi. **Education Level**
  - 1. Specific level or range
- vii. **Cultural Orientation**
  - 1. Membership to an ethnic/religious group?
- viii. **Asset Ownership**
  - 1. Home, land, cattle-- what is indicative of wealth and status?
- ix. **Access to Capital A**
  - 1. Access to personal savings, ability to access traditional or non-traditional finance

### b. Retail Demographics

- i. **Sector**
- ii. **Years in Operation**
- iii. **Total Revenue**
- iv. **Reach**
  - 1. Primary and branch locations
- v. **Nature of Engagement**
  - 1. Licensing your ventures technology etc.
- vi. **Method of Payment**
  - 1. How will they pay you, over what time period?

## Step 4: Defining Your Segments

While it is important to understand as many geographic and demographic details about your segment as possible, in order for segmentation to be a useful tool for your venture, you will need to define your segment in the terms that are most meaningful to you.

Study the geographic and demographic variables you identified above and look for trends. Note: As you make segmenting decisions for your venture, make sure your proposed segments are large enough to

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<sup>6</sup> Demographics Variables: specific, meaningful traits of a segment that reflect their need, interest, and ability to buy. End-user demographics can differ from retail demographics.

sustain your venture economically and that they are reachable<sup>7</sup>. Create definitions for up to three separate market segments, keeping in mind that segments should be:

1. **Definable:** The definition should include enough detail that it describes a collection of people with specific characteristics in common
2. **Meaningful:** Each characteristic chosen should meaningfully relate to the segment's interest, need, and ability to buy your product/service<sup>8</sup>

You may include as few or as many of the above geographic and demographic elements as you like, but keep in mind that making a segment too broad negatively impacts its usefulness as a tool.

*Examples: Small-medium scale farmers in and around Makeni, Sierra Leone who are directly involved in operations, provide for their families, have some access to credit and are seeking to expand.*

Rearrange your personas into piles corresponding to segment membership.

### **Step 5: Referencing Stakeholder Personas**

In order to fully understand the nature of each customer segment, social entrepreneurs need to understand how the members of that segment think and why they make the choices they do. Referencing stakeholder personas is one method of uncovering the dynamic elements of a venture's context.

Look over each persona in each of your target segments before continuing. Are there personas who do not fit into a segment? Do you need to have them as an end user?

Which personas are still key-stakeholders but not end-users?

### **Step 6: Journey Mapping**

Social Entrepreneurs can use context mapping at any stage in the venture lifecycle. In the idea stage, before a pilot program has been launched, a context map can be created using predicted data and used as a market-driven validation tool and way to predict and address pain-points prior to launch. During or after the launch phase, context mapping can express the reality of how stakeholders interact with a venture, indicate pain-points, and point out opportunities for improvement and growth.

Venture context maps are created through the eyes of a single segment or stakeholder, and since each of your segments/stakeholders will experience your product/service in a different way, you will need to make a context map for each of them.

Create a single map for each segment (this may aggregate information from several end users) and a single map for each related stakeholder (which will only include information from a single person)

When creating a venture context map using predictive data, focus on how the persona would experience the product based on the geographic, demographic, psychographic, and behaviorgraphic data you uncovered.

An example map can be found in Workshop Appendix B, it includes the following elements:

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<sup>7</sup> Adapted from *Successful Business Plan: Secrets and Strategies* by Rhonda Abrams

<sup>8</sup> Adapted from *Successful Business Plan: Secrets and Strategies* by Rhonda Abrams

1. **Phases** (Awareness, Information Gathering, Decision Making, Purchase, After-Sales)
2. **Goals** (For each phase indicate the customer's goals in the appropriate box)
3. **Touch Points** (Plot your venture's touch points. At which point in the journey does your venture (or retailer) make contact with your stakeholder?)
4. **Pain-Points** (Pain-points are touchpoints that could harm your venture should they go wrong)
5. **Opportunity-Points** (Opportunity-points are touchpoints that could positively impact your venture should they go right)
6. **Causation** (For each pain-point or opportunity-point define what makes it fall into that category)
7. **Action** (For each pain-point and opportunity-point indicate an action your venture could take to increase its chances of success)

## Part 6: Analyzing The Map

The stakeholders' journey, as reflected through the context map gives important insights into product design, business development, and implementation strategy. Low (or even neutral) satisfaction scores indicate pain-points for your venture, and depending on the reason for the score, they can even indicate that elements of your venture are not valid within the context of your target segment.

There are four kinds of validation: concept, technology, market, and usability. The information from your customer journey map should provide you with the insight needed to answer the following questions:

1. **Concept Validation**
  - a. Does your persona understand your product/service?
  - b. Does your persona think your venture will be successful in their context?
  - c. Does your product address the need you designed it to address?
  - d. Can your persona afford your product/service?
2. **Technology Validation**
  - a. Is your product/service actually better and cheaper than what your persona currently has? If so, by how much?
  - b. Will you have access to the technology/ infrastructure/ resources you need to be successful? Is it reasonable?
  - c. Do people have the technical background needed to access your product/service?
3. **Market Validation**
  - a. Does your product/service really solve a real problem?
  - b. Do enough people care about your product/service for your venture to be economically sustainable?
  - c. Is your market reachable? Physically? What about promotion?
  - d. Do you really have a competitive advantage? What is it?
  - e. Will your income be consistent/seasonal; can your venture sustain itself?
  - f. How much room is there to scale?
4. **Usability**
  - a. How easy is it for your persona to become aware of your product/service?
  - b. How easy is it for your persona to gain access to your service?
  - c. How easy it is for your persona to dispose of your product /unsubscribe from your service?
  - d. How easy is it for your persona to repurchase?

**Workshop Appendix A:**

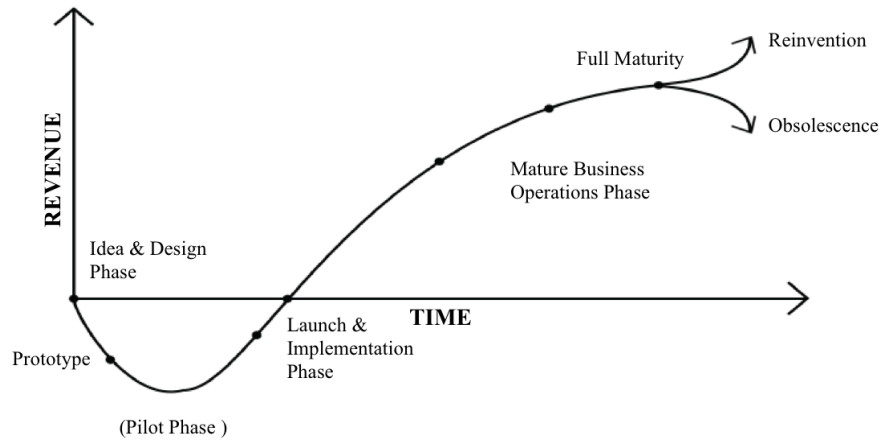


Figure 1: Business Lifecycle

**Workshop Appendix B:**

Phase	Awareness	Information Gathering	Decision Making	Purchase	After Sales
Goal	Understand what possibilities exist	Learn more, set criteria for final purchase	Decide to purchase or not purchase	Travel to outlet to receive/request maintenance	Request and receive maintenance or other aftersales service
Touchpoints					
Pain-Points					
Opportunity-Points					
Causation					
Action Steps					

Figure 2: Blank Stakeholder Journey Map

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- Schreyer Internship Grant, Schreyer Honors College, 2012
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- Pennsylvania State University, Engineering Leadership Development Minor (ELDM), Course Coordinator, 2012-2014
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