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An Investigation of Micro- enterprise Capability-building via Access and Use of Technology

By

Travis Godwin Good

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Philosophy

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Under the Supervision of Dr. Sajda Qureshi

Omaha, Nebraska

July, 2011

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Abstract

An Investigation Micro-enterprise Capability-building via Access and Use of Technology

Travis Godwin Good, Ph.D. Student

University of Nebraska, 2011

Advisor: Dr. Sajda Qureshi

Micro-enterprises (businesses with one to five employees) lie at the heart of the American economy but are not well-researched. It is believed that technology adoption has the potential to spark strong growth among micro-enterprises, but current technology adoption models are tailored for large businesses and do not consider the human, social, and economic inputs peculiar to micro-enterprises. This research investigates how access to, and use of technology may lead micro-enterprises to build capabilities that will help them increase their net income and hire more employees. Framed as a specification of Amartya Sen's capability perspective, this research seeks, through a qualitative inductive multiple case study methodology, to generate concepts and theory tied to both the IS and the IT for Development literature. The contribution of this research is a carefully structured analysis of micro-enterprise IT Adoption that has implications for understanding micro-enterprise needs, how micro-enterprises function, and how micro-enterprises access and use technology to grow.

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Chapter 1: Introduction

Introduction

In its 2011 review of economic data from the Bureau of Labor and Statistics and other sources, the Association for Enterprise Opportunity (AEO) determined that Micro-enterprises (businesses with one to five employees) now constitute 88% of all US Businesses, or 25.5 million of 29 million total businesses, and that the rate at which micro-enterprises are being founded is at a fifteen year high. Furthermore, the AEO calculated that "if just one in three micro-enterprises hired a single employee, the US would be at full employment" (AEO, 2011). At a time when employment opportunities at large companies are being cut back, micro-enterprises have the potential to create jobs and income that can anchor communities, facilitate the diffusion of useful skills, and even serve as the basis for a new wave of industrialization in the developed world (Gillard, Mitev, & Scott, 2007) (Hollifield & Donnermeyer, 2003) (Grosh & Somolekae, 1996). If they are to expand and fuel economic growth, micro-enterprises must capture the gains in productivity, administrative efficiencies, access to markets, and access to knowledge that technology has offered larger businesses (Kosempel, 2007) (Dewan & Kraemer, 2000) (Barua, Konana, Whinston, & Fang, 2004) (Qureshi, 2005).

Technology adoption would appear to have great potential to increase income and hiring within these businesses (Norris, 2002) (Qureshi, 2005) but so far has been very limited (Qiang, Clarke, & Halewood, 2006) for reasons that clearly extend beyond existing IT Adoption theories (Wolcott, Qureshi, & Kamal, 2007) (Vargas, 2000). IT for development researchers, meanwhile, have focused most of their energy on micro-enterprises in the developing world

(Brown & Grant, 2010), which face distinct challenges from micro-enterprises in the developed world (Schreiner & Woller, 2003). The generalizability of this developing world research is limited by its weak ties to both IT and development theory (Heeks, 2007). As Vargas points out, understanding the context of micro-enterprises *matters*: "fostering growth in micro-enterprises .. requires [understanding] the integration of modern technology .. individual initiative and collective effort and a genuine focus on sustainability through a balance of economic, social, and environmental concerns" (Vargas, 2000).

Micro-enterprises face great obstacles to adopting IT (Piscitello & Sgobbi, 2004) (Furuholt & Orvik, 2006) (J. Thong, 1999), some of which appear to be shared with other types of small businesses, but others of which appear to be unique (Wolcott, et al., 2007). It has been suggested that in order for useful theories to be developed about the potential for micro-enterprises to grow using technology, a structure must be found that is capable of relating IT concepts to a depiction of micro-entrepreneurial agency in the face of human, social and economic constraints (Heeks, 2007) (Vargas, 2000) (Zheng, 2009).

Despite their prevalence and economic significance (Servon & Doshna, 2000), micro-enterprises suffer from a level of resource constraint that differs meaningfully from that of other businesses (AEO, 2011) (Schreiner & Woller, 2003). For example, a World Bank survey found that 63% of micro-enterprises found technology services to be unaffordable, compared to 45% of small businesses, and 36% of medium-sized businesses (Qiang, et al., 2006). In fact, micro-enterprise under-development is often cited as an example of what has become a recognized problem for developed countries: the phenomenon of non-uniform development. In a 2003 article, Warschauer points to cases across the world in which unequal access to resources occurs across community lines. For instance, he contrasts the rich resources available in the

predominantly white community of Beverly Hills California to the dearth of goods and services on offer in Inglewood (its proximate, predominantly African American counterpart) (Warschauer, 2003).

Other researchers have used case studies to draw similar conclusions about non-uniform development. In Switzerland, for example, large resource access differences appear when contrasting urban to rural communities, women to men, and older to younger individuals (Vodoz, Reinhard, & Giaque, 2007). In Nebraska, where 87% of all businesses are micro-enterprises, large resource access disparities exist across communities, and many micro-enterprises are situated within communities that are underdeveloped (Kamal, 2009) (Qureshi, Kamal, & Good, 2009). This situation is challenging but also offers a strong incentive to find ways to assist the micro-enterprises and thus their constituent communities (Vargas, 2000). This research investigates these challenges in micro-enterprises by assessing how micro-enterprises adopt IT to grow their businesses.

Potential of IT for Development

The potential for IT to operate as a tool of social inclusion (Zheng & Walsham, 2008), and ease uneven development has been a focus of much scholarship. For instance, as Pippa Norris comments in her foundational text, *Digital Divide*:

"Digital networks have the potential to broaden and enhance access to information and communications for remote rural areas and poorer neighborhoods, to strengthen the process of democratization under transitional regimes, and to ameliorate the endemic problems of poverty in the developing world. With connectivity as the umbilical cord, enthusiasts hope that the Internet will eventually serve multiple functions as the world's favorite public library, school classroom and medical database, post office and telephone, marketplace and shopping mall, channel for entertainment, culture and music, daily news resource for headlines, stocks and weather, and heterogeneous global public sphere" (Norris, 2002, p. 4).

In other words, the introduction of technology to under-developed communities has great potential to facilitate human (health-related), social (democratic), and economic (market-related) outcomes by connecting these communities to networks of resources that would otherwise be out of reach.

Outside of a large number of macro-economic studies that have explored the relationships among offering connectivity through technology diffusion (Narayan & Guang-Zhen, 2007), investments in different kinds of national infrastructure, and economic growth (Freeman, 2004) (Kosempel, 2007) (Matthews, 2007) (Bhattacharya & Sharma, 2007), a body of case study research has arisen that focuses on the use of different types of technology to facilitate development outcomes. Thematically, this literature has revolved around the use of technology to achieve "learning" (the transformation of information into knowledge), and "decision making" (use of information and knowledge to take action) outcomes (Heeks, 2002) and to transform business and governmental practices (Qureshi, Kamal, & Keen, 2009) (Ciborra & Navarra, 2005).

One key contribution has been to highlight the potential for cell phones (and similar mobile technologies) to not only facilitate the formation of human, social, and economic capital (Bayes, 2001), but also to serve as a proxy for the banking and loan infrastructure found in developed countries (Bladin, 2007). Another key contribution has been to illustrate how technology can bolster educational opportunities. For example, It has been suggested that computer learning initiatives have the potential to give people access to educational opportunities that were simply not available before, because of distance, or the lack of quality local instructors (Lynn, 2006). Other key contributions have focused on the use of IT to facilitate transparent government and democratic outcomes (Avgerou, Ganzaroli, Poulymenakou, &

Reinhard, 2009), the ways in which IT is believed to foster innovation in business (Denning, 2004) (Prendergast, 2006) (S. Qureshi, M. Kamal, & P. Keen, 2009), ways in which IT infrastructure may be introduced into developing countries effectively such as through the use of telecenters and cyber cafes (Proenza, Bastidas-Buch, & Montero, 2001), and ways in which IT can foster social connections and community (Ciborra & Navarra, 2005).

Gaps in the IT for Development Research

Although the literature on IT for Development shows promise, this body of work appears to have significant gaps and problems within it. One major gap is that almost all studies focused on countries in the *developing* world (Brown & Grant, 2010). Given not only the economic importance of micro-enterprises in developed countries, but also the fact that it is known that micro-entrepreneurship is both a different and a more difficult endeavor for micro-enterprises in the *developed* world (Schreiner & Woller, 2003), this gap is particularly noteworthy. A second major gap exists between theory and practice: Heeks found that most case studies in the IT for development area were purely descriptive; they lacked a coherent organizing framework and sensitivity to the concerns not only of development theory (Heeks, 2002), but also of technology theory (Heeks, 2007). It has been suggested that the field's inattention to development and technology theory has led to problems for practitioners attempting to assess IT needs and implement assistance; IT assistance efforts have "continued high failure rates" (Brown & Grant, 2010).

If there is little coverage of IT as it relates to micro-enterprises (Duncombe & Heeks, 2002), there is at least literature on IT Adoption by small to medium sized enterprises (SMEs) in the developed world, where SMEs are businesses ranging in size from 50-1000 employees (Riemenschneider, Harrison, & Mykytyn, 2003). Generally, IT use has been shown to be

economically beneficial: deployment of IT appears to contribute to profits at a firm level (Barua, et al., 2004; Qureshi, Kamal, & Wolcott, 2009) provided that IT choices are aligned with both a business' strategy and its available resources (Powell & Dent-Micallef, 1997). A comprehensive World Bank survey found that firm IT use not only correlated with increased hiring but that "enterprises that used e-mail to communicate with their clients and suppliers grew 3.4 percentage points faster per year in terms of sales and 1.2 percentage points faster in terms of employment than those that did not" (Qiang, et al., 2006). IT use has also been implicated in business innovation (Sheehan, 2006)

IT Adoption has been characterized in small business as a process consisting of successive phases in which technology comes to transform businesses processes and practices in the areas of management, personnel, marketing, administration, service, sales, purchasing, and/or processing of goods (Knol & Stroeken, 2001). Attempts have also been made to explain IT Adoption in terms of firm-level strategy (Levy, Powell, & Yetton, 2002) , changing informational requirements (Street & Meister, 2004), and the stage of the small business' growth (Churchill & Lewis, 1983). Similarly, research has drawn on general models of technology adoption to explain small business adoption behaviors, including the Technology Acceptance Model (TAM), and the United Theory of Acceptance and Use of Technology Model (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003).

Development researchers, especially since the adoption of the United Nations' Millennium Development Goals (United_Nations, 2009), have tended to define development in terms of equal access to opportunity (Zheng, 2009). From this standpoint, there has been a recognition that metrics related to increases in economic growth and IT utilization say little about increases in development. For example, a growth in per capita income may mask rising

income inequalities. A measure of the number of telephones per one hundred people may indicate nothing about whether the telephones are being used in a productive and/or socially beneficial manner (Heeks, 2002).

Unfortunately, theories about IT Adoption and use drawn from the business and IS disciplines lack a reference to the normative concept of 'opportunity' (Zheng & Walsham, 2008); they are fundamentally incomplete as they do not tie adoption outcomes to development outcomes. Attempts to utilize technology adoption theories in isolation to 'optimize' development have often resulted in both poor adoption and poor development outcomes in the micro-enterprise context, due to opportunity-related factors such as personal goals, lack of time and community disapproval being more significant determinants (Warschauer, 2003). Such failures underscore the need for future research approaches to be multi-disciplinary in nature (Vargas, 2000).

Another issue associated with the application of technology adoption theories to micro-enterprises is that they were originally developed and intended for formal organizational contexts (Straub, 2009), whereas the micro-enterprise operates in a much more informal setting, within the context of a community. Faced with resource and information scarcities, a micro-entrepreneur must draw heavily on community resources in order to survive and understand his/her business environment. The micro-entrepreneur is dependent upon social networks (bonds with other individuals), ties to governmental and non-governmental agencies, and dynamic loose affiliations with other businesses (Duncombe & Heeks, 2002). Technology adoption theories in isolation are not equipped to accommodate the range of affiliations necessary for the conduct of a micro-enterprise's business, let alone to explain business constraints and outcomes in this manner (Madon, Reinhard, Roode, & Walsham, 2010), and

models like TAM (which posits that adoption is driven by perceived ease of use and usefulness) do not illuminate aspects of the context that are of most interest, for instance: *why* and *how* is a technology perceived to be useful (Straub, 2009)? Such deficiencies underscore the need for research approaches that engage with the micro-entrepreneur's community context (Mann, 2003).

In summary, key gaps in technology adoption theories have emerged as these (the theories) have been applied to micro-enterprises. The gaps stem from two factors: a misalignment between the coverage of technology adoption theories and the normative goals of development research, and a misalignment between the formal organizational unit of analysis in adoption theories and the community context in which micro-entrepreneurs actually operate. This research will address these gaps using the capability perspective.

Capability Perspective

A theoretical lens is needed that can structure the analysis of the ties among known concepts from the IS/IT literature and the social (community-oriented), human, and economic conditions faced by micro-entrepreneurs, so that the potential for IT's impact on both growth and well-being can be better understood in the developed world context. Such a lens is offered by Amartya Sen's capability perspective.

The capability perspective has attracted much scholarly attention as a means of organizing and prioritizing the importance of human, social and economic factors in complex contextually bound situations wherein well-being is an important normative concern (Gasper, 1997) (Martins, 2006) (Thomas & Parayil, 2008) (Madon, et al., 2010). In contrast to traditional IT Adoption theories, "one of the strengths of the capability approach is that it is able to account for human diversity" (Zheng, 2009). Robeyns indicates that, in fact, the capability perspective

has started to be used "as an alternative to mainstream cost benefit analysis.. in the assessment of small scale development projects" (Robeyns, 2006). As exemplified in the work of Alkire, the capability perspective has proven excellent for understanding the interaction of "dimensions that are very hard to quantify" and as a tool for analyzing the ways in which individuals in underdeveloped areas function (Alkire, 2002). It is also described as being excellent for "integrating [the concerns] of theory and practice" in interdisciplinary applications, and as a useful tool for framing even data that is not "specifically collected with the capability approach as the theoretical basis" (Robeyns, 2006).

Sen's capability perspective is a conceptual framework that can be applied to evaluate the well-being of both individuals and groups. The assumption on which the capability perspective rests is a view of 'freedom' as, to quote Sen: "(1) the primary *end* and (2) the principal *means* of, development." In Sen's view, freedom of action, or a person's ability to pursue what he/she perceives as valuable, tends to lead to development. Sen offers descriptions of broad categories of 'instrumental' freedom that contribute to individual freedom (and thus potential prosperity), including political freedoms, economic freedoms, social opportunities, and protective security. Sen refers to the choices individuals *make* in a given context as individual 'functionings.' The *possible* choices available to individuals are referred to as 'capabilities.' Sen describes the 'available choices' in terms of inputs moderated by the individual's goals and abilities (conversion factors). The choices actually made are described as 'achieved functionings' in contrast to the super-space of 'potential functionings' synonymous with capabilities. Instrumental freedoms broadly circumscribe the individual's capabilities, but other inputs (such as available resources, income, etc.) also play a role in shaping what is possible in a given situation. Sen's definition of capabilities as 'freedom of action' permits him a pithy definition of

poverty as 'capabilities deprivation.' Poverty, in Sen's frame, is not 'low income' but rather a description of an individual's inability to function at a desired level relative to others (Sen, 1999).

Zheng has offered a conceptual application of the capability perspective to the IT for Development area; she suggests that the capability approach offers the potential to answer questions such as : "1. What capabilities can potentially be generated from a certain type of ICT? 2. Are they appropriate for local conditions at this stage? What conversion factors (personal, social, environmental) need to be in place for capabilities to be generated from a certain type of ICT?" She suggests that theory on the answers to these questions may be developed through a process of collecting and analyzing data on four areas that she categorizes as the Means and ends of development, Human diversity, Agency, and Evaluative spaces" (Zheng, 2009).

This research investigates how micro-enterprises access and use technology to build capabilities that help them grow their businesses, using an application of the capability perspective as interpreted by Zheng (Zheng, 2009) and Robeyns (Robeyns, 2006) as an analytical framework. Use of this framework permits a structured investigation of micro-entrepreneurs' IT Adoption behaviors accounting for human, social and economic considerations. The application of the framework is accomplished through use of both Sen's concepts and categories, and concepts drawn from the literature referenced in the theoretical background section. The investigation takes a multiple case study approach. The following section describes the research question that drives the investigation.

Research Question

The research question is designed to examine how the means of a micro-entrepreneur (such as income, or the ability to barter) permit a micro-entrepreneur to adopt technology-related goods and services that, as moderated by the individual's personal conversion factors

(e.g. free time, educational level, community involvement) offer said individual the potential freedom (capability) to grow his or her business, should he/she choose to attempt to do so.

Growth is defined as an increase in net income and/or the number of employees employed by a business (Qiang, et al., 2006). Technology adoption is defined as "using computer hardware and software applications to support operations, management, and decision making [in a business]" (J. Thong, 1999). The research question is also designed to consider the basis for the choices that the micro-entrepreneur *makes* and the resulting outcomes (Robeyns, 2005). The wording of the question abbreviates the term interactions and linkages up to the phrase 'freedom (capability)' as "patterns of access and use" and comparatively privileges growth-related achieved functionings. It is phrased as:

What patterns of technology access and use build capabilities that enable micro-entrepreneurs to grow their businesses?

A qualitative inductive multiple case study that involves the collection of three sets of data is undertaken to address the needs of the research question. The first set of data consists of eight case studies (six complete, two partial) employing an average of six months of regular observation per case, alongside material from comprehensive interviews. This set of data traces the conversion of technology commodities (offered as part of a micro-enterprise assistance program in accordance with micro-entrepreneur goals) to enabled freedoms and micro-entrepreneur choices. A second set of data, consisting of case studies on four micro-enterprises that received no technology assistance, but which achieved significantly varying growth-related functionings using technology, is employed to supplement the space of potential functionings and deprivations considered by the first set of data.

As is customary in capability-motivated IT for Development research (Duncombe & Heeks, 2002) (Vargas, 2000) (Alkire, 2002), detailed interviews were conducted with local stakeholder organizations (eight representatives of five organizations in total). These interviews, comprising the third set of data, offer additional useful information about levels of perceived micro-enterprise functioning and deprivation, environmental conditions, and, alongside the other sets of data, about tensions between stakeholder approaches and the micro-enterprises' expressed needs.

Meeting the need to incorporate both IT and Development research, an analytical framework is developed from the ITD, small business, and technology literature that associates concepts with the various categories under Sen's capability perspective (e.g. inputs, individual conversion factors, achieved functionings). This lens is employed in the presentation and analysis of all the data. The analysis section (split across the results section and a separate chapter) employs individual case analysis as well as a cross case technique (Yin, 2003a). Generalizations occur from description to theory (Lee & Baskerville, 2003) and identify growth-related patterns of technology access and use by micro-enterprises at different stages of development (Churchill & Lewis, 1983).

Conclusions and Contributions

This dissertation makes two contributions. One contribution of this dissertation lies in its adaptation of the capability perspective to structure a qualitative analysis of the interaction among known concepts from the IS/IT literature and the social, human, and economic conditions faced by micro-entrepreneurs. Case studies that make explicit ties to both development and IT theory are very uncommon in the IT for development area (Heeks, 2007). As well, the qualitative, rather than quantitative application of Sen is novel (James, 2005),

particularly the elaboration of a qualitative instrument designed to capture rich information related to the capability perspective as it ties to IT access and use (Robeyns, 2006).

The second contribution of the dissertation lies in its analysis of micro-entrepreneurs' access and use of IT to grow their businesses. This carefully structured analysis accounts not only for typical factors considered in IT Adoption literature (such as IS experience) (J. Y. Thong, Yap, & Raman, 1994), but also presents micro-entrepreneurs as agents in a social, community context, and depicts how their affiliations and conceptual abilities lead to different growth outcomes.

The dissertation is organized into seven chapters. This Chapter, Chapter 1, introduced the topic for the dissertation, its importance, what is known about the topic, the gaps that exist in the literature related to this topic, and how the research question addresses the topic and helps to fill in the gaps identified in the literature. As well, Chapter 1 offered an overview of the dissertation's research methodology and the key contributions of the dissertation. Chapter 2 situates the dissertation within existing streams of research, by explicating its connection both to development theory and a particular understanding of the IT artifact. It also provides information on the concepts used to apply Sen's analytical framework to the micro-enterprise context. Chapter 3 elaborates upon the research methodology and design. Chapter 4 outlines a pilot study. Chapter 5 presents the results and individual case analyses. Chapter 6 presents the cross-case analysis and overall analysis. Chapter 7 concludes the study, summarizes its findings, and highlights its contributions and limitations.

Chapter 2: Theoretical Background

Introduction

This theoretical background section is designed to situate the dissertation within existing streams of research, by explicating its connection both to development theory and a particular understanding of the IT artifact. It also provides information on the concepts used to apply Sen's analytical framework to the micro-enterprise context.

To understand the capability perspective, and to appreciate its usefulness for research, it is helpful to understand what it is not. This is particularly critical as much IS research (Orlikowski & Iacono, 2001) makes assumptions that are at odds with those underlying the capability perspective. In the following sections, then, two additional perspectives on development are presented (the modernization and dependency perspectives), alongside Sen's. The results of the applying the assumptions from each perspective to development work are then explored. From this application, it should become clear that the capability perspective provides a richer analytical framework than the other two perspectives, one that inherently aligns with participant goals. If the interest is in sustainable development, then such an alignment is not only desirable but also necessary (Vargas, 2000).

The sections that follow link different views of the IT artifact to the three perspectives on development that were presented, as well as to different streams of IT for Development research. These sections explain why the view of "Technology as Embedded System," which is primarily concerned with how technology is being used in a given socio-economic context, is the appropriate view for capability research. After different frameworks for understanding the

developmental benefits derived from access to, and use of, IT, are outlined, it is suggested that Qureshi's framework (Qureshi, 2005) is most appropriate for preliminarily categorizing the kinds of capabilities enabled by IT. Similarly, it is suggested, through a review of some of the literature on micro-enterprise functioning in a community context, that it is important to capture a micro-enterprise's use of social relationships in any investigation of micro-entrepreneurial behavior.

With the research having been tied to a specific stream of development research (IT for development), the "Embedded" view of the IT Artifact, and Qureshi's capability categories, a detailed review of Sen's analytical framework follows. Terms within the framework are defined, and Robeyns' interpretation of Sen's work is presented. Similarly, the framework's preliminary application to the area of IT by Zheng is discussed. The conclusion of this discussion is that, in order to be useful, any application of Sen's analytical framework needs to reference additional concepts.

The final section of the theoretical background defines the concepts that were used to specify Sen's analytical framework in the micro-enterprise context. These concepts were arrived at inductively, through an application of the methodology (see Methodology chapter for details). The concepts cover all of the areas discussed by Robeyns (Robeyns, 2006), and address the questions raised by Zheng (Zheng, 2009). The use of these concepts, and their organization into an analytical framework, facilitates the investigation into how patterns of access and use of technology build capabilities that enable micro-entrepreneurs to grow their businesses.

Development as Modernization

Popularized by such scholars as Lerner (Schech, 2002), the modernization perspective judged that the advantage held by 'developed' over underdeveloped countries was a social and technical infrastructure that facilitated the creation of empirical knowledge. Assuming

developed Western-style technocracy to be the 'goal,' or endpoint, this school defined stages of development in terms of Western countries' own histories. It made milestones of specific achievements, such as the 'industrial revolution,' and the 'telecom revolution,' and sought to guide under-developed countries through a similar progression of stages. Researchers in this school implicitly viewed under-developed countries as 'primitive,' and in need of Western assistance (Schech, 2002; Sein & Harindranath, 2004). They gauged development progress in quantitative terms associated with the diffusion of Western technologies and the growth of per capita income (Brown & Grant, 2010).

There are major problems with this perspective. Some of these revolve around the fact that it (the perspective) privileges knowledge creation in its interpretation of development to the detriment of consideration of important human and social realities (Zheng, 2009). For instance, modernization ignores the issue of self-determination: Do under-developed nations/regions/groups actually *want* to transform? Other issues relate to modernization's emphasis on quantitative economic metrics that vary independently of citizens' actual quality of life. For example, a growth in per capita income may mask rising income inequalities; a measure of the number of telephones per one hundred people may indicate nothing about whether the telephones are being used in a productive and/or socially beneficial manner (Heeks, 2002).

Two of modernization's underlying assumptions cause major pragmatic issues for modernization-oriented aid programs. First, viewing Western technological development stages as 'inevitable' leads to overly optimistic predictions about how the introduction of core technologies (factories, computers, the Internet), will spark economic growth. In fact, many technology introduction programs simply fail, or fail to meet growth objectives, due to being misaligned with local, regional, and national goals, social context, and structures of governance

(Madon, et al., 2010). Second, the top-down, developed-to-developing communication style implied by a modernization approach harms aid practitioners' ability to *learn* from the context in which they are working (Schech, 2002). The result is an unresponsiveness or brittleness, a separation from local priorities and values that leads to higher rates of failure (Warschauer, 2003).

Development as (escape from) Dependency

Somewhat in reaction to modernization, and the excesses of its associated development programs, the "dependency" perspective on development arose. Viewing Western interventions as a continuation of colonial-style imperialism, the dependency perspective defined development in terms of independence from Western economic systems. Global independence could be achieved through protectionism (especially the imposition of tariffs), the cultivation of local produce, and investment in local industrial production.

This perspective has been subjected to two primary criticisms. The first is that the realities of global trade mean that total economic independence for any country is both an unrealistic and undesirable goal. The second criticism is that the implicit moral judgment of imperialists as exploitative, and the (formerly) colonized as virtuous, tends to obscure the actual human situation in developing countries (Sein & Harindranath, 2004). If 'development' means independence, for instance, should an independent tyranny with strict import controls, such as North Korea, be celebrated?

Development as Freedom

The work of the philosopher and economist Amartya Sen has informed a different perspective on development, one that revolves around the concept of human 'well-being,'

construed as a person's freedom to fulfill his or her potential within a given human, social and economic context. In Sen's frame, a more developed country is one that gives a citizen more latitude to pursue his aims (Robeyns, 2005). A nation's human, economic and social spheres are thus intrinsically related. As Sen argues in his book, *Development as Freedom*, for example – China's limits on political freedom of expression have hampered the country in economic and human crises by limiting the impact of constructive criticism that could hasten both prompt action and the reform of faulty and corrupt practices (Sen, 1999).

Sen's framework, or elements thereof, have been embraced by many organizations. Most prominently, Sen's work is the basis for the United Nations' widely promulgated "Millennium Development Goals," that include: "End Poverty and Hunger," "Universal Education," "Gender Equality," "Child Health," "Maternal Health," "Combat HIV/AIDS," "Environmental Sustainability," and "Global Partnership." Economic considerations inform the goals, as in the "Global Partnership" goal: "Target 2: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system" and "Target 5: In cooperation with the private sector, make available benefits of new technologies, especially information and communications," but the goals' place an emphasis on equal access to opportunity rather than the achievement of economic quotas (United_Nations, 2009).

Like those of the modernization and dependency perspectives, the assumptions underlying Sen's framework have implications. One of the implications is that policy undertaken for the benefit of 'developing' countries needs to consider its own social, human, and economic repercussions; 'development' interventions must be made to fit communities, rather than the reverse. This perspective is directly opposed to that of classic modernization, which has tended to characterize the inability to adapt to Western ways of operating as a deficiency (Schech,

2002). A second, related, implication is that an aim of development is the increase of democratic freedoms, and that self-determination is of paramount importance. A third implication is that poverty is normalized as a concept across nations, regions, and groups. Sen's description of poverty as 'capabilities deprivation,' or an individual's inability to freely act resolves some of the counterintuitive conclusions suggested by modernization metrics, including, for example, the idea that in dollar terms there are technically no 'poor' Americans. Under Sen's view, particular Americans may still be seen as impoverished for having fewer meaningful opportunities for employment and political activism, and limited access to such necessities as healthcare, and so on, compared with the average American (Sen, 1999).

The Modernization Perspective: Technology as Aid Drop

Modernization privileges knowledge and its transmission over human and social concerns. It also tends to assume that the introduction of technology leads inevitably to development, and takes a top down approach to technology introduction. Thus, a caricature of the modernization approach might be as follows: an aid program identifies a poor area, places an Internet kiosk within it, and assumes that the kiosk is now helping area residents to obtain useful information, communicate better, and learn more about the world and make better decisions (the processes and functions associated with technology, according to Heeks). Such was the approach taken by the Municipal Government of New Delhi, according to an article by Warschauer. As he puts it, though "the program was hailed by its organizers as a groundbreaking model for how to bring information technology to the world's urban poor..My visit..revealed [an] Internet connection [that] seldom functioned.. [a kiosk architecture that] made instruction or collaboration difficult..[and] children play[ing] games and us[ing] paint programs to draw" (Warschauer, 2003). He goes on to point out that the program made no

attempt to align itself with the community's goals, to network with existing aid organizations connected to the community, or to collect feedback from residents. The program's focus was on the kiosk technology, which, it was assumed, would be used by New Delhi residents to process and communicate knowledge, and facilitate decision making and learning in exactly the same way as it might in a Western context.

As should be evident from this vignette, the modernization assumptions led to a project that was perceived by its creators as a success but which was, in terms of increasing well-being, an abject failure. In fact, human constraints (lack of literacy), and social constraints (lack of community buy-in) played a much larger role than the technology in determining that outcome.

The Dependency Perspective: Technology as Magic Beans

Dependency theory defines development in terms of independence from Western economic systems. Independence is achieved through investment in local forms of production. Technology is treated as having no other characteristic than that it is used for production. A caricature of a dependency project might therefore depict a large national investment in factories following the one-time importation of 'modern' technologies. This investment produces complete independence for the formerly dependent country.

In fact, such approaches have been tried and do not produce the expected level of 'independence.' The reason appears to be that such investment programs merely capture a 'snapshot' of technological development rather than the human aspirations supported by educational and social infrastructure that produced the technology (Kosempel, 2007). The *lack* of any technological tie within dependency theory to even the *basic characteristics* of Information Technology as defined by Heeks should indicate that it is not suitable for deployment in any development projects that one wishes to succeed. In point of fact,

participation in the world's core technology, the Internet, violates the tenets of dependency theory (Norris, 2002).

Views on the IT Artifact

The theoretical basis of IT for Development is complex, and incorporates strands from a variety of fields. The discourse is complicated further by the fact that IT itself has been defined in a variety of ways. To organize the discussion, then, it is necessary to look in some detail at the definitions of the "IT Artifact," and the types of IT research surrounding these definitions. Next, summaries of how the different notions of IT have been attached to development theory will be provided, guided by the work of Heeks (Heeks, 2007), Brown (Brown & Grant, 2010), Sein (Sein & Harindranath, 2004), and Qureshi (Qureshi, 2005).

In what has come to be considered a seminal paper in the IT literature, Orlikowski and Iacono (Orlikowski & Iacono, 2001) highlighted the fact that "IT," its characteristics, behaviors, and implications, are often taken for granted. The authors termed the 'lack' of characterization of the IT Artifact, defined as the hardware/software of interest that performs a function, as the 'nominal view' of IT, and their extensive literature review produced worrying results showing this view to be that most commonly exhibited in scholarly publications. The authors also identified other views of the IT Artifact, namely the "Tool View," the "Proxy View," the "Ensemble View," and the "Computational View," each fundamentally different and containing sub-categories. These views are synopsized below.

The "Tool View" of technology depicts technology as a resource used to advance the agenda of the technology's designers or consumers. The properties of the tool and the exact *way* it advances the agenda through its interactions with users are not addressed. The view has four subcategories. The first, "Technology as Labor Substitution Tool," identifies technology with

the replacement of human employees. Filing clerks, for instance, are much less necessary in a digital document ecosystem wherein new documents are automatically categorized. The second subcategory, "Technology as Productivity Tool," identifies technology less as a direct replacement for human labor, and more as a tool for boosting efficiency, the result of which may be a lessened need for human labor, as existing employees can get more done. The third subcategory, "Technology as Information Processing Tool," is associated with the argument that the chief strength of technology involves assisting in the processing and analysis of large volumes of information, through which actionable knowledge is built. The fourth subcategory, "Technology as Social Relations Tool" acknowledges all the previous contributions of technology, but emphasizes the way in which technology adoption influences social structures within organizations.

The "Proxy" view of technology places the focus not on the technology artifact itself, but upon some consequence or secondary effect of technology. The view has three subcategories. The first subcategory, "Technology as Perception," characterizes technology as a human tool best framed in terms of human perceptions of it. The second subcategory, "Technology as Diffusion," characterizes technology as a form of infrastructure and suggests that research should focus on the prevalence and availability of a given technology. The third subcategory, "Technology as Capital," characterizes technology in terms of 'return on investment,' the benefits offered versus the costs incurred.

The "Ensemble" view of technology places technology in a social context, highlighting the ways that the technologies developed are the result of consensus, as well as the ways in which inherent design assumptions shape subsequent behavior(s). The view has four subcategories. "Technology as Development Project" depicts technology projects as the

outcome of a competition among stakeholders who possess varying degrees of influence. The "Technology as Production Network" takes a broad (often nation-level) view of the infrastructure and related technologies and organizations required to produce a particular technology and attempts to elucidate the role of government policy in defining such networks. The "Technology as Embedded System" view is primarily concerned with how a technology is being used within a given socio-economic context. The "Technology as Structure" view identifies technology as a scaffolding of design assumptions imposed upon existing social behaviors, and looks at the intended and unintended consequences of technology deployment.

The "Computational" view of technology depicts technology as a problem-solving and problem-modeling tool. It has two subcategories. The "Technology as Algorithm" subcategory focuses on the creation of computational strategies and techniques that will make difficult problems more tractable. The "Technology as Model" subcategory focuses on the attempt of researchers to accurately simulate the world to produce both better descriptions and predictions.

Linkage Among IT Artifact Perspectives and Development Theories

The diverse literature in IT for Development draws its theory base from elements of both the modernization and capability development perspectives, as well as from multiple views of the IT artifact. As Sein points out (Sein & Harindranath, 2004), IT for Development often copes with IT in the "nominal" fashion that Orlikowski and Iacono identified as problematic. Heeks suggests that the literature has similarly neglected development theory, through the production of case studies uninformed by concepts from the development literature. In a commentary on the subject, Heeks avers that the theoretical neglect is unfortunate, as IT for Development sits at the intersection of, and could draw theories from, information studies,

communication studies, technology studies, development studies, economics, and political science (Heeks, 2007).

Brown and Grant, in an extensive survey of IT for Development research, suggest that the central question of the field "has evolved from understanding 'if' there is a causal relationship between technology and development..to..understanding 'how' to maximize the developmental benefits derived by IT use and adoption" (Brown & Grant, 2010, p. 97). The latter authors cite Walsham and Sahay's work, that identified four IT for Development research streams, including "(1) Understanding the link between ICTs and development, (2) understanding the cross-cultural and multi-cultural implications of ICTs, (3) understanding the notion of local adaption and how developing countries appropriate ICTs, and (4) understanding how ICTs lead to the development and prominence of marginalized groups" (Brown & Grant, 2010, p. 99).

The depiction of these four streams of research suggests that the first stream is primarily related to a tool or ensemble view of IT, with the tool view being emphasized by modernization theorists, and the ensemble view favored by proponents of the capability perspective. The second stream appears to be situated alongside the "Technology as Embedded System" or "Technology as Structure" perspectives of the "Ensemble" view, and seems to emphasize some of the center/periphery arguments associated with dependency theory primarily and the socio-economic contextual awareness advocated by the capability perspective, secondarily. The third stream seems conceptually linked to the "Proxy" view of "Technology as Diffusion" primarily, and perhaps to a lesser degree to elements of the "Ensemble" view; at a national level it would seem to implicate modernization theory, and at a local or regional level, the capabilities perspective. The fourth stream's linkages seem to be to

the "Tool" view of technology, somewhere between "Technology as Social Relations Tool" and "Technology as Information Processing Tool"; whether the modernization perspective is favored over the capabilities perspective in this research remains ambiguous.

Brown and Grant impose a higher level divide between studies of technology in developing countries (that tend not to treat 'development' as a primary issue), and studies of technology for development, in which "socio-economic development is the dependent variable influenced both positively and negatively by a set of independent variables related to the adoption or appropriation of ICT." The authors situate Walsham and Sahay's second and third research streams in the category of "ICT in Developing Countries," and the first and fourth research streams in the category of "ICT for Development."

Since this proposal is primarily concerned with ICT *for* Development and not ICT *in Developing Countries*, only the first and fourth research streams remain, these being: the 'primary link between ICTs and development,' and the 'development...of marginalized groups.' In terms of the 'theoretical basis of IT for Development,' these implicate only the capability and modernization perspectives on development, and the "Tool" and "Ensemble" views of the IT artifact.

Unfortunately for researchers attempting to build development theory, Brown and Grant's findings indicate that articles on ICT *for* Development comprise a distinct minority (thirty-three out of one-hundred eighty four), compared to articles related to ICT *in Developing Countries*. Although some concepts may be transferable from one area to another, the dearth of articles on ICT *for* Development significantly limits the theory base in this area.

A different theoretical division is suggested by Sein and Harindranath, one which is worth lining up alongside those already presented. These two authors explicitly acknowledge

the importance of the IT Artifact in IT for Development research, but also suggest that the *use* of ICT and the *impact* of ICT must be categorized and considered (Sein & Harindranath, 2004, p. 17). They describe four uses of ICT: "ICT as a Commodity" (ICT as a 'raw' export), "ICT Supporting General Development Activities" (ICT as a tool for development *organizations*), "ICT as a Driver of the Economy" (ICT as infrastructure), and "ICT Directed at Specific Development Sectors or Projects" (ICT used to facilitate community or individual level projects). For outcomes, they posit "first order or primary [as a] simple substitution of old technology for new," "second-order or secondary [as] an increase in the phenomenon enabled by the technology" and "third-order or tertiary [as] the generation of new technology-related businesses and societal change."

From the descriptions, it is clear that of the three uses of ICT, only "ICT Directed at Specific Development Sectors or Projects" falls clearly under the category of "ICT *for* Development." The authors suggest that the only appropriate views for "ICT Directed..." is the *Ensemble* view, or the "ICT as Proxy for knowledge" view.

While their 'use' framework is certainly helpful as an alternate means of delineating the research in the field, Sein and Harindranath's 'impact' framework leaves much to be desired, in the sense that it does not clearly explain how IT effects development, or tie IT adoption into a social, human, or economic context. A much better framework for accomplishing this that fits with the capabilities perspective, and the topics of interest-- the primary link between ICTs and development, and the 'development..of marginalized groups,' (which together qualify as "ICT Directed at Specific Development Sectors or Projects")-- is provided by Qureshi (Qureshi, 2005).

Qureshi begins by implicitly rejecting what Walsham and Sahay categorize as research stream number three ("understanding the notion of .. how developing countries appropriate IT") via a detailed discussion of the failures of macro-economic models to accurately and/or

parsimoniously predict development outcomes when the inputs include national or regional factors, technology investments, and "aid dollars." Rather, Qureshi suggests that close, qualitative analysis, containing rich description is required to clarify the social processes influencing development outcomes. She suggests that statistical models poorly reflect the dynamism of social processes, and that the field would be better served by generating a sound *theory* of said processes.

The final section of Qureshi's paper elaborates a model linking social and economic conditions to the human development outcomes that access to and use of IT can provide for people, including "Access to Information and expertise," "Competitiveness and Access to New Markets," "Administrative Efficiencies," and "Learning and Labor Productivity." Qureshi suggests that properly directed IT interventions can lead to a virtuous circle of increased knowledge, social and economic development, and per capita income group. Failure to properly introduce IT can, on the other hand, isolate a community from the global economy and lead to negative outcomes.

Qureshi's framework works because it acknowledges the three subcategories of the tool view (labor substitution, productivity, information processing) as the "direct" effect of IT, while also diagrammatically depicting the fact that these direct effects act on and are acted upon by socioeconomic factors; this format neatly encapsulates the 'embedded' view of technology (which this dissertation employs) while at the same time tying it to the context described by Amartya Sen's capabilities perspective. Put succinctly, Qureshi's framework creates an elegant bridge between the 'embedded' IT artifact view and the capabilities perspective.

Technology Adoption Models in the IT Literature, in Perspective

The IS Discipline offers models of technology adoption, including the Technology Acceptance Model (TAM), and the United Theory of Acceptance and Use of Technology Model (UTAUT) (Venkatesh, et al., 2003). The technology acceptance model, which has been somewhat dominant in the IS literature, posits that individuals adopt technologies based on how easy to use and useful they view the technologies as being. In recent years, this model has been criticized in three distinct ways. The first criticism is that the model may be circular, or tautological, given its ambiguous definition of ease of use and usefulness (Avgerou, et al., 2009). The second criticism is that TAM makes no attempt to account for individual characteristics in explaining ease of use or usefulness (Straub, 2009). For a technique that serves as the basis for the Proxy View of technology as "perception," the omission of personal characteristics from the model is peculiar (Orlikowski & Iacono, 2001). For the development practitioner exploring the context of micro-enterprises, individual and community circumstances seem *extremely* important (Duncombe & Heeks, 2002), and a theory of technology adoption that incorporates these is required. The third criticism is that TAM seems to conflate the concept of "perceived ease of use" with what is now viewed as a separate concept, "self-efficacy"; a user may think that a technology is easy to use without actually being good at using it.

UTAUT, which has been viewed as a successor to TAM, attempts to address some of the deficiencies in the earlier model, especially the confusion between "perceived ease of use" and "self-efficacy." A primary criticism of this new model has been that it conflates "effort expectancy" with other attitudes, such one's perception of technology. The model is also considered unproven; recent tests have been equivocal.

Neither TAM nor UTAUT is considered tested or appropriate for an *informal* organization (Straub, 2009), such as that which might surround a micro-entrepreneur with a small number of employees. Wolcott et al. (Wolcott, et al., 2007) and Qureshi et al. (Qureshi, Kamal, & Good, 2008), have suggested that traditional models of technology acceptance (TAM and UTAUT), do not adequately explain technology adoption by micro-enterprises: despite understanding on a theoretical level the benefits and usefulness of IT solutions and being given IT resources, entrepreneurs in these studies often failed to adopt new technologies.

It is the argument of this proposal that TAM and UTAUT adopt a "proxy" view of technology that is at odds with the most useful view of technology for the micro-enterprise context, the "ensemble" view of technology as embedded in a social context. A social context is something qualitatively distinct from an *organizational* context; micro-enterprises are not large enough to contain an organizational context in and of themselves, but they are operated on by social and community-level economic forces, and their destinies are ultimately determined by particular human attributes and aspirations that the TAM and UTAUT frameworks fundamentally obscure. These attributes and aspirations are not (as proposed by UTAUT) mere demographics; they deserve a nuanced treatment that considers their importance in context. In Sen's terminology, the 'weighting' of the attributes affecting the development equation in the developed world micro-enterprise context is unknown; it is the researcher's job to illuminate such.

To help define how this illumination may be accomplished, the following sections describe the 'community' level view on IT Adoption, and offer detail on Sen's capability perspective as well as Zheng's (Zheng, 2009) and Robeyns' (Robeyns, 2006) interpretation of it. As well, background on specific concepts from the literature (chosen inductively through the

application of the dissertation's methodology) is offered. Taken together, these background sections help define an application of Sen's capability perspective that may help explain how micro-enterprises can adopt IT to build capabilities to grow their businesses.

Community View of Micro-enterprise IT Adoption

Although IT Adoption may represent one path to growth for micro-enterprises, there is a body of literature suggesting that a focus solely on *firm-level* IT Adoption is somewhat misplaced. In fact, this research asserts, the lens of development efforts (including IT related efforts) should be 'community development,' which is defined in terms of building Sen's capabilities in the human, social, and economic areas (Vargas, 2000). The validity of this proposition seems to be borne out by studies indicating, for example, that microfinance effectiveness, given similarly administered programs, varies by population (Morduch, 2000), and that an introduction of cell phone technology into a Bangladeshi village was successful in large part due to its facilitating desired social connections (Bayes, 2001). The proposition may also be compatible with modern socio-technical theory, which holds that IT is not separable from its social firmament (Rouse & Baba, 2006) (Kenway, 1996).

Along these lines, studies are appearing that analyze micro-enterprises in terms of social networks— on the basis of whom entrepreneurs talk to, whom they draw tangible resources from, and how these connections are structured. In this literature, the aggregate social resource pool upon which entrepreneurs draw to launch endeavors is termed 'social capital' (Greve & Salaff, 2003). For entrepreneurs, exploiting networks involves 'discovering opportunities,' 'securing resources' and 'obtaining legitimacy' (Elfring & Hulsink, 2003). Characterizing the social situation and agency of micro-entrepreneurs is a promising, if under researched, means to improve understanding of development outcomes (Honig, 1998). With the growing importance

of electronic communication, theory around social agency styles built on technology has begun to be defined. Technology usage may be described in terms of its being asocial, socially acquainted (dependent upon previously established connections), or socially unacquainted (not dependent on previously established connections) (Miyata & Kobayashi, 2008).

The Capability Perspective

Amartya Sen has proposed a strong linkage among national social, human and economic development. Using various case studies he suggested that under-development in one area constrains development in other areas. For instance, he pointed to India's under-investment in its education and healthcare sectors as a key constraint on its economic growth. Similarly, he suggested that China's limited political development constrains that country's ability to respond to economic and human crises such as famines (Sen, 1999).

One of Sen's most important contributions to development theory and policy was to shift the normative definition of development away from positivist notions of raw production and toward a general concept of well-being (Robeyns, 2005; I. Robeyns, 2005). Using his 'capability' framework, it is possible to describe aspects of both social and individual well-being.

It is important to treat Sen's 'capability perspective' in detail, as it serves to frame much of the rest of the discussion. Philosophically, Sen's theory stands in contrast to classic utilitarianism, which tends to construe utility in financial terms, without reference to any differences that may exist among individuals in terms of aspirations (Walsh, 2007). Sen's theory also runs counter to the assumptions underlying much early IS research, wherein researchers attempted to measure IT benefits in strict organizational-level financial terms (DeLone, 1988), and to the 'modernization' perspective of technology-adoption-as-progress espoused by organizations such as the World Bank (Zheng, 2009).

Though it can be expressed in terms of econometric equations, the capability perspective is more of a high-level conceptual framework that can be applied to evaluate the well-being of both individuals and groups. The assumption on which the capability perspective rests is a view of 'freedom' as, to quote Sen: "(1) the primary *end* and (2) the principal *means* of, development." In Sen's view, freedom of action, or a person's ability to pursue what he/she perceives as valuable, tends to lead to social benefits.

Sen offers up descriptions of broad categories of 'instrumental' freedom that contribute to individual freedom (and thus potential prosperity); these are defined in the Table 1, below:

Instrumental Freedom	Definition
Political freedoms	"refer to opportunities that people have to determine who should govern and on what principles"
Economic freedoms	"refer to the opportunities that individuals respectively enjoy to utilize economic resources for the purpose of consumption, or production, or exchange"
Social opportunities	"refer to the arrangements that society makes for education, health care and so on, which influence the individual's substantive freedom to live better"
Protective Security	Refers to the "need to provide social safety net for preventing the affected population from being reduced to abject misery"

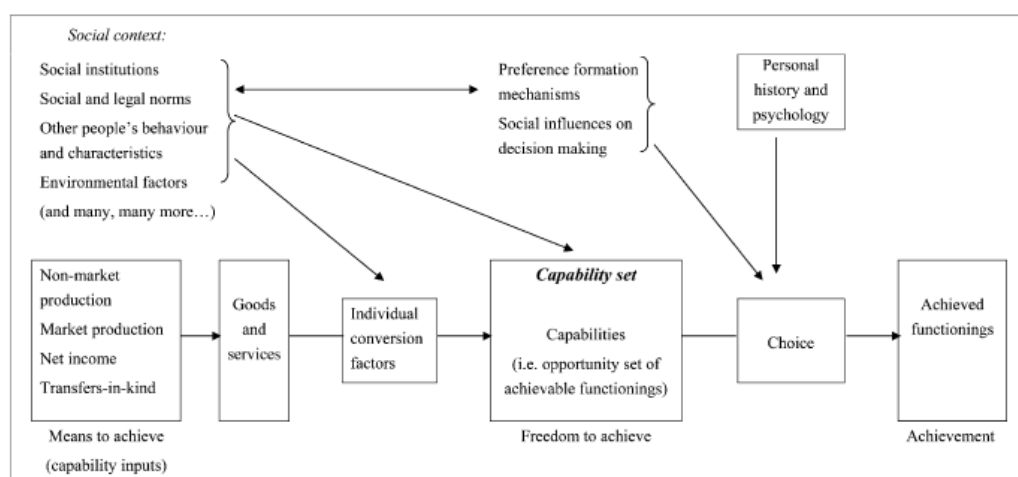
Table 1: Sen's Instrumental Freedoms (Sen, 1999)

Instrumental freedoms can be assessed at the individual level, but are primarily *operated* upon at the level of government policy. Instrumental freedoms represent one set of *means* by which the *end* of development is achieved (Robeyns, 2005). Sen refers to the choices individuals *make* in a given context as individual 'functionings.' The *possible* choices available to individuals are referred to as 'capabilities.' Sen recognizes that individuals will not always make

the best choices, but adopts the normative perspective that society should permit individuals the range of choices that will allow them to best approximate their goals.

Sen describes the ‘available choices’ in terms of inputs moderated by the individual’s goals and abilities (conversion factors). The choices actually made are described as ‘achieved functionings’ in contrast to the super-space of ‘potential functionings’ synonymous with capabilities. Instrumental freedoms broadly circumscribe the individual’s capabilities, but other inputs (such as available resources, income, etc.) also play a role in shaping what is possible in a given situation. The framework is superbly illustrated by Robeyns’ diagram, reproduced below as Figure 1:

Figure 1: Capability Set in Context



Source: Robeyns (2005)

Robeyns' presentation is helpful because it succinctly defines the necessary elements that must be considered in order to employ the capability perspective in research. These elements include a description of prevailing social and environmental conditions, economic inputs, and an individual's attributes. These elements moderate each other, and constrain the options that an individual feels he/she has to achieve his/her goals. Robeyns' presentation is

'non-dynamic' because the graphic does not account for the cyclical nature of the capabilities perspective, for instance: individual choices may build capabilities that in turn permit choices that build additional capabilities. Applied to this dissertation, taking the dynamic view means the analysis must consider how an individual's ability to access, and choice to use, technology, may build capabilities that directly cause growth, or build other capabilities that in turn cause growth; investigating how the individual's choices fit within his/her environmental framework, and the identifying the kinds of choices that lead to growth-related outcomes is the subject of the research.

A basic insight arising out of Robeyns' diagram and subsequent discussion is that Sen's framework is an excellent tool for conceptualizing the barriers that individuals face in achieving their goals. If one removes or lowers these barriers, prospects for achieving development are improved. A corollary is that policies that remove obstacles are judged to be 'good,' depending on whether said obstacles bear on the capabilities of interest to society.

Of course, to describe particular capabilities as more interesting or desirable than others is to enter a realm of protracted academic debate. Sen himself offers no opinion, preferring to leave such descriptions to 'social consensus.' As a practical matter, 'desirable' lists of capabilities for social justice have been filled in by Nussbaum, and other kinds of desirable capabilities are being proposed by researchers attempting to specify Sen's analytical framework in various domains (Gasper, 1997) (Robeyns, 2006). One aim of this dissertation is to define some important IT-related capabilities that may be enabled for micro-enterprises.

Sen's definition of capabilities as 'freedom of action' permits him a pithy definition of poverty as 'capabilities deprivation.' Poverty, in Sen's frame, is not 'low income' but rather a description of an individual's inability to function at a desired level relative to others. Scrutiny of

poverty or poor individuals or groups, therefore, entails an examination of the instrumental freedoms, inputs and individual conversion factors that play a role in constraining individual freedom of action.

Sen makes the related argument that there may exist a “ ‘coupling’ of disadvantages between (1) income deprivation and (2) adversity in converting income into capability.” By way of example, he observes that “Handicaps, such as age or disability or illness, reduce one’s ability to earn an income. But they also make it harder to convert income into capability, since an older, or more disabled, or more seriously ill person may need more income ... to achieve the same functionings.” As illustrated in the pilot study cases, this argument has a good deal of bearing on foreign micro-entrepreneurs in the U.S., whose lack of technological, cultural and linguistic fluency causes reciprocal hardships with income deprivation (Sen, 1999).

Zheng applies the capability perspective, and Robeyns' view of it, to the area of IT for Development (Zheng, 2009). She particularly emphasizes the importance of agency, noting:

By putting agency as an explicit component of a person's capability set, any development policy or evaluation methods that are informed by the CA have to take into account the aspirations and needs of the people affected... [this] does not suggest an unconditional acceptance of whatever a person happens to perceive as valuable.. There is still space.. for the agency to be evaluated and appraised.

She goes on to create a list of question areas that must be addressed in capability perspective research related to IT and Development. These four areas include the *Means and ends of development*, which is "Essentially concerned with IT's contributions to people's capabilities to achieve a valuable life," *Human Diversity*, which looks at "conversion factors [that] are in place to generate potentials to achieve [using IT]," *Agency*, which looks at "social arrangements" associated with IT, and *Evaluative Spaces* which is concerned with defining the space of potential functionings of interest in relation to IT. Zheng's topic areas, and her discussion of the

challenges and issues associated with the application of Sen's analytical framework to the area of IT for development inform the study design, as described in the methodology.

Both Zheng and Robeyns point out that in order to apply the capability perspective to a given domain (such as IT for Development), additional concepts must be introduced under the umbrella of its categories, as the framework is "underspecified" (Zheng, 2009) (Robeyns, 2005). The additional concepts for this study, arrived at using an inductive method outlined by Robeyns (Robeyns, 2006) that is detailed in the methodology, are provided in the section that follows.

Applying the Capability Perspective to Investigate IT Adoption in Micro-enterprises

As mentioned, the capability perspective is considered "underspecified." The following paragraphs list the concepts chosen inductively through the application of the methodology in the next chapter. These concepts are combined to produce a preliminary analytical framework at the end of this subsection.

Deprivations

Wolcott et al. (Wolcott, et al., 2007) reviewed a list of *deprivations* raised by Furuholt and Orvik (Furuholt & Orvik, 2006) and found a number of them to be highly applicable to the micro-enterprise context. Wolcott et al.'s applied definitions of these deprivations are utilized by this paper. The deprivations include the following: *Lack of Top Management Engagement*: Associated with a micro-entrepreneur's lack of willingness to learn or use IT independently, and a lack of confidence. *Knowledge Barriers and Staff Resistance*: Associated with a lack of time to learn new technology and a high level of frustration with technology. *Lack of Utilitarian Value and Other Personal Incentives*: Associated with a micro-entrepreneur failing to see the value in a technology, as it related to his/her goals. *The Symbolic Value of Information Technology*:

Associated with a micro-entrepreneur's acquiring technology in order to appear technologically competent, but then being unable to exploit the technology's practical value. *Poor Organization:*

Associated with a micro-entrepreneur's inability to call upon IT support services to provide consistent technology support for any IT problems that may arise. *Poor Infrastructure:*

Associated with a micro-entrepreneur's lack of Internet connectivity.

In addition to the above, a deprivation drawn from Qureshi's (Qureshi, 2005) framework helps characterize businesses that are struggling to maintain day-to-day operations. The description *Administratively Inefficient* applies to micro-enterprises that suffer from high overhead due to excessive reliance on paper processes, or inefficient use of technology in day-to-day work (Relatedly, the description of *Administratively Efficient* is applied as an individual conversion factor if the micro-entrepreneur exhibits notable efficiencies in his/her business operations).

Two additional deprivations are drawn from Zheng's review and application of Sen to the international IT cases (Zheng & Walsham, 2008). The first general deprivation, which Zheng takes directly from Sen, is termed *Social Exclusion*: "being excluded from social relations." In this context, it refers to a micro-entrepreneur's inability to connect to individuals, communities, or community partner organizations that might be helpful to the micro-entrepreneur as he/she attempts to grow his/her business. The second deprivation, developed by Zheng through her application of Sen to cases, is *Unfavorable Inclusion*. In this context, *Unfavorable Inclusion* refers to IT being used in a way that imposes high work burdens with limited benefits in relation to the goals of the micro-entrepreneur.

Three deprivations are drawn directly from Sen, and the work of Grosh and Somolekae. The first deprivation is one that Sen calls attention to : *Lack of Income* (Sen, 1999). As described

previously, Sen indicates that a lack of income can lead to negatively reciprocal deprivation 'cycles,' a phenomenon he terms the 'coupling of disadvantages.' For instance, an individual may have a low income that makes attending an educational program impossible. Yet without his receiving additional education, the individual will always have a low income. A related deprivation that Grosh and Somolekae identify is "Lack of Access to Capital," which will be split into two separate deprivations-- a *Lack of Access to Loans* and *Lack of Savings* (Grosh & Somolekae, 1996).

The reason for splitting the deprivation into two is that micro-entrepreneurs may not even apply for loans; their savings may constitute their "capital." The phrase "Lack of Access to Capital" has confusing connotations associated with banking. There are also some subtleties that merit consideration from the capability perspective: A lack of access to loans is a social/environmental deprivation, whereas a lack of savings is more of an individual deprivation; each may exist independently of the other. Both deprivations, however, may make it difficult for a micro-entrepreneur to maintain ongoing operations in the face of economic fluctuations (Grosh & Somolekae, 1996; Schreiner & Woller, 2003).

A final deprivation was added after the first sub-step of the analysis phase (see Methodology for detail). This deprivation is called *Low Population Density*, and refers to conditions in which it is difficult for a micro-entrepreneur to reach his/her customers due to the population being thinly distributed. A literature review indicated that this is a recognized problem for businesses. Kilkenny et al. refer to it as a "spatial economic problem" implicating "costs of transportation" and market size (Kilkenny, 2010). Bartik notes that, accounting for other factors in a panel study of fifty states, population density explained 40% of the difference

in the number of small businesses created within each state on an annual basis; the lower the population density, the fewer the number of small businesses founded (Bartik, 1989).

In summary, an inductive process on the initial data, and a review of the literature produced the following deprivations to be considered by the full study: *Lack of Top Management Engagement, Knowledge Barriers and Staff Resistance, Lack of Utilitarian Value and Other Personal Incentives, The Symbolic Value of Information Technology, Poor Organization, Poor Infrastructure, Social Exclusion, Unfavorable Inclusion, Lack of Income, Lack of Access to Loans, Lack of Savings and Low Population Density*. These deprivations cover social, human, and economic constraints that a micro-entrepreneur may face.

Capabilities

Concepts from Qureshi's framework, already discussed and justified in the context of the literature review, are used to describe capabilities. These capabilities include the following: *Access to Information, Knowledge, and Expertise* refers to the freedom of micro-entrepreneurs to discover previously inaccessible information to aid in decision making activities. *Competitiveness and Access to New Markets* refers to the freedom of micro-entrepreneurs to reach new customers via, for instance, web advertising, social networking, or other methods of communication. *Administrative Efficiencies* refers to the freedom of micro-entrepreneurs to maintain day-to-day operations efficiently. *Learning and Labor Productivity* refers to the freedom of micro-entrepreneurs to use IT to learn about innovations which they can then adopt accomplish more in terms of their core functions. An additional capability, *Improved Product and/or Service Quality*, was derived from the pilot study, and refers to the freedom of a micro-entrepreneur to offer improved products or service to his/her clients as a result of the use of IT.

In summary, the capabilities *Access to Information, Knowledge, and Expertise, Competitiveness and Access to New Markets, Administrative Efficiencies, and Learning and Labor Productivity* are derived from Qureshi's framework (Qureshi, 2005), that was adopted as part of the study due to its being compatible with both the "Ensemble" view of the IT Artifact, and Sen's capability perspective, as well as for its breadth. The capability *Improved Product and/or Service Quality* was added as a result of the conduct of a pilot study for the dissertation.

Capability Inputs

As per Robeyns (Robeyns, 2005), an individual starts with certain capability inputs. These represent his/her economic achieved functionings. Since this study is concerned with small businesses, a description of small business achieved functionings drawn from the literature review was chosen. This description comes from the "stages of small business growth" indicated by Churchill et al. (Churchill & Lewis, 1983).

The stages of growth are as follows: *Existence* refers to a stage of growth in which it is unclear whether or not the business can get customers or deliver a product or service. The key issue in this stage is a lack of money and/or other resources needed to market the business and/or develop the product or service. *Survival* refers to a stage of growth in which "the business has demonstrated that it is a workable business entity. It has enough customers and satisfies them sufficiently with its products or services to keep them." The key issues at this stage are whether the business can cover the cost of replacing its capital assets as these wear out, and whether the business can earn a profit. *Success* refers to a stage of growth in which the business is stable and profits are predictable. The key issue at this stage is whether the business owner wishes to reinvest the profits of the business to grow it further, or "completely or partially disengage.. to pursue hobbies and other outside interests while maintaining the

business more or less in the status quo." *Take-off* refers to a stage of growth in which the business owner is hiring more employees and investing significant cash resources in the business. The key issues at this stage or whether the business owner can effectively delegate to others, and whether or not he/she has enough cash to meet the capital demands of hiring, advertising, etc. that come with expansion. *Resource-Maturity* refers to a business that has gone through rapid growth, hired a significant number of employees, and is now seeking to gain efficiencies and optimize its strategy. The key issue is whether or not the expanded business can "preserve its entrepreneurial spirit" and continue to innovate and take risks.

It is important to mark the distinction between the "stage of growth" as a capability input and "growth" as an outcome measured in terms of an increase in net income or hiring (Qiang, et al., 2006). Growth outcomes are defined in terms of net income and hiring because the study is framed in light of community concerns, and micro-enterprises have shown the potential to bolster communities through income generation and hiring (Servon & Doshna, 2000). As noted in the introduction, the AEO calculated that "if just one in three micro-enterprises hired a single employee, the US would be at full employment" (AEO, 2011). Of course, this study does not focus solely on growth and growth outcomes. Rather, it is concerned with presenting a picture of technology-enabled freedoms that may lead to growth outcomes. Such a concern with enabled freedoms is what distinguishes the study from a modernization perspective that would be focused *solely* on growth (Zheng & Walsham, 2008).

To summarize, as per Robeyns (Robeyns, 2005), it is necessary to characterize economic achieved functionings as capability inputs. The concept of "stage of growth" from Churchill et al. is introduced to provide such a characterization. It includes descriptive categories such as *Existence, Survival, Success, Take-off, and Resource-Maturity*. This concept is compatible with

the capability perspective in that it indicates what a micro-enterprise can actually accomplish given its economic state. It is distinct from the outcome of "growth" defined in terms of net income and hiring.

Good and Services

As per Robeyns (Robeyns, 2005), an individual deploys goods and services to the best of his/her ability to achieve his/her goals. In this study, of particular interest are IT-related goods and services, as the presence of such goods/services in a micro-enterprise is indicative of the micro-entrepreneur's access to and use of, technology. A synonym for access and use of technology is "IT Adoption," and there is a great deal of literature on the subject (Venkatesh, et al., 2003). To describe IT Adoption, and the extent of IT Adoption in a micro-enterprises, Thong's (J. Thong, 1999) definitions from his paper on IT Adoption in small businesses are employed.

Thong describes *IT Adoption* as: "using computer hardware and software applications to support operations, management, and decision making in the business." Thong defines the extent of IT Adoption as: "the number of personal computers and the number of software applications in use in each business" (J. Thong, 1999). Thong's study is quantitative. Adapting his definition to a qualitative study is not difficult, however. The average micro-entrepreneur in the study used one computer, an office productivity suite, an accounting application, and an internet browser; the description *Average IT Adoption* indicates this situation. Any adoption level below the latter may be described as *Below Average IT Adoption*. Micro-enterprises that exhibit "Average IT Adoption" but which also use one or more domain specific applications or databases (e.g. a Massage Therapy note taking program) are described as having *Above Average IT Adoption*. Micro-enterprises that, in addition to the aforementioned, use software programs

specifically developed by contractors for their (the micro-enterprises') businesses are described as having *Extensive IT Adoption*.

In summary, the primary goods and services to be considered are IT-related. The level of IT deployed by the micro-entrepreneur is described using the terms *Below Average IT Adoption*, *Average IT Adoption*, *Above Average IT Adoption* and *Extensive IT Adoption*.

Individual Conversion Factors

The application of the capability perspective in this context, as per Robeyns (Robeyns, 2005), requires addressing individual conversion factors with respect to IT. Conversion factors are those attributes of the individual that permit him/her to convert the goods and services at his/her disposal into a set of capabilities. The goods and services considered by this study relate to IT Adoption, so it makes sense to consider conversion factors that might permit a micro-enterprise to leverage the IT he/she has adopted.

This study considers two such conversion factors, CEO's IS Experience and CEO Innovativeness. Logically, an individual more experienced with IS has the potential to make better use of the IS at his/her disposal. Moreover, individuals who are innovators may be able to leverage IT resources more effectively than non-innovators.

The definition of IS Experience employed by the study is derived from Thong. In Thong's studies, "the various types of IS experience included (1) attended computer classes (2) use a computer at home (3) use a computer at work and (4) have formal qualifications in the use and operation of a computer." Based on this definition, a micro-entrepreneur is described as having *High IS Experience* if he/she has attended more than two computer classes, uses a computer at home and at work, and/or has one or more certifications associated with computer or software

use or was able to use a sophisticated domain specific program such as AutoCad. A micro-entrepreneur is described as having *Moderate IS Experience* if he/she has attended two or more computer classes (or equivalent), and uses a computer at home and at work. A micro-entrepreneur is described as having *Low IS Experience* if he/she has had one or no computer classes, and/or uses a computer in only one location.

Respecting CEO Innovativeness, Thong states "everyone is located on a continuum ranging from an ability to do things better to an ability to do things differently... the two extreme ends of the continuum [are] adapters and innovators. In the case of a small business, the adapter CEO would seek solutions that have already been tried and understood. On the other hand, the innovator CEO would prefer solutions that change the structure in which the problem is embedded--in other words, solutions that have not been tried out and are therefore risky" (J. Thong, 1999).

Based on this description, this study describes a micro-entrepreneur as an *Adapter* if he/she expresses technology goals that are efficiency and productivity oriented, or which are related to achieved functionings typical of other small businesses (e.g., use of a website to represent the business online). This paper describes a micro-entrepreneur as an *Innovator* if he/she expresses a desire to use technology to transform his or her business processes, or describes technology goals or achieved functionings that are very atypical compared to the those of other micro-entrepreneurs in the study.

To summarize, conversion factors permit individuals to turn goods and services into a capability set. This study is primarily concerned with IT-related goods and services, so conversion factors were chosen that reflected an individual's ability to deploy the IT resources at his/her disposal. The conversion factors considered relate to a micro-entrepreneur's level of IS

Experience and Innovativeness, and include the terms *Low IS Experience*, *Moderate IS Experience*, *High IS Experience*, *Adapter* and *Innovator*.

Micro-enterprise Business Environment

As per Robeyns (Robeyns, 2005), there are a number of environmental factors to consider when applying the capability perspective. For a micro-enterprise, the business environment is a primary concern (Levy, Powell, & Yetton, 2001). In this study, the informational demands on the micro-entrepreneur, the level of competition, and the influence of the customer within the business environment seemed to be important features.

Regarding the informational demands on the micro-entrepreneur, Thong's concept of information intensity is employed. Information intensity refers to "The degree to which information is present in the product or service." As Thong puts it "businesses in different sectors have different information processing needs... For instance, travel agencies are more information-intensive, as their main functions are to process and package tour information" (J. Thong, 1999). For this study, a micro-enterprise is described as being *High Information Intensity* if its business model is primarily related to the provision of information to customers. A micro-enterprise is described as being of *Average Information Intensity* if its business model involves ongoing product or service research to dynamically adapt to customer demands. A micro-enterprise is described as being *Low Information Intensity* if its business model does not involve ongoing product or service research; the products or services offered by such micro-enterprises are essentially static.

To characterize the competitive environment, Thong's definition of competition is employed (J. Thong, 1999). The definition contains three items: "ease for a customer to switch to a competitor, level of rivalry among businesses in the same industry, and effect of

substitutable products and services." *High Competition* shall refer to a situation in which the micro-enterprise has many competitors offering similar products and services and/or the customer can easily switch and/or other products/services may be easily substituted by the consumer for those provided by other micro-enterprises. *Average Competition* shall refer to a situation in which the micro-enterprise has few direct competitors (perhaps because the micro-enterprise occupies a very well-defined niche) but the customer could switch to one of these competitors relatively easily, and/or substitute another good or service for the micro-enterprise's product relatively easily. *Low Competition* shall refer to a situation in which the micro-enterprise has no direct competitors and the customer cannot switch to another provider of the unique product/services that the micro-enterprise offers, although there may be goods or services that the customer can substitute for the micro-entrepreneur's goods or services relatively easily.

The influence of the customer on the micro-entrepreneur is characterized using Levy's et. al's concept of "customer dominance," which refers to whether or not customer demands determine the business' behavior, based on the number of customers a micro-enterprise has (Levy, et al., 2001, 2002). In this context, *High Customer Dominance* micro-enterprises are those which have a small number of customers. *Low Customer Dominance* micro-enterprises are those which have a large number of customers.

To summarize, as per Robeyns (Robeyns, 2005), it is necessary to capture salient features of the environment so that the capability perspective may be applied. With respect to micro-enterprises, the business environment is a major concern; it is described in terms of information intensity, competition, and customer dominance, using the terms *Low Information*

Intensity, Average Information Intensity, High Information Intensity, Low Competition, Average Competition, High Competition, Low Customer Dominance, and High Customer Dominance.

Social Context: Affiliations

In the capability perspective, as per Robeyns (Robeyns, 2005), it is important to be able to characterize the social environment, a concern that is shared by the literature on IT for Development (Vargas, 2000) (Duncombe & Heeks, 2002) (Bayes, 2001) (Honig, 1998). Since this study is concerned with IT Adoption, it makes sense to distinguish tech-related social connections and non-tech related connections. These are described using the terms *Technical Affiliations* and *Non-Technical Affiliations*, respectively. Technical affiliations shall refer to those social resources that the micro-entrepreneur exploits for technical services and support. Non-technical affiliations shall refer to those social resources from which a micro-entrepreneur may draw non-technical support.

Of course, not all affiliations are created equal. For further granularity, the study characterizes affiliations as being "Strong" or "Weak" using a definition from Elfring and Hulsink (Elfring & Hulsink, 2003). As these scholars put it:

"Strong ties are associated with the exchange of fine-grained information and tacit knowledge, trust-based governance, and resource cooptation..Weak ties are beneficial as they provide access to novel information as they offer linkages to different regimes of the network..Strong ties tend to bind similar people in longer-term and intense relationships. Affective ties with close friends and family members may provide a shortcut to or even preclude the search for useful knowledge and access to critical resources..Weak ties refers to a diverse set of persons working in different contexts with which one has some business connection and infrequent or irregular contact. These loose and non-affective contacts increase diversity and may provide access to various sources of new information and offer opportunities to meet new people. Weak ties represent local bridges to disparate segments of the social network" (Elfring & Hulsink, 2003).

For this study, *Strong ties* are defined to be affiliations the micro-enterprise maintains over a long period, with frequent and regular contact, that involve a significant exchange of

information and resources among the parties involved. *Weak ties* refer to ties that are not strong ties, and/or ties that are short term in nature and involve minimal resource exchange, although novel information may be exchanged among the parties.

To summarize, the social environment of a micro-entrepreneur is an important consideration under the capability perspective and in the IT for Development literature generally. A micro-entrepreneur's relevant social connections are characterized in this study using the terms *Technical Affiliations*, *Non-Technical Affiliations*, *Strong ties*, and *Weak ties*.

Choice: Social Agency

As per Robeyns (Robeyns, 2005), a micro-entrepreneur makes choices about how to leverage his/her capability set. As per Zheng (Zheng, 2009), these choices may be judged and characterized. Since micro-entrepreneurs are often sole proprietors (Grosch & Somolekae, 1996), they must draw on social resources (affiliations) in order to grow. Elfring and Husink's paper on entrepreneurship offers three categories of action in relation to affiliates that appear to be well-suited to characterizing a micro-entrepreneur's social agency (Elfring & Hulsink, 2003). These categories are employed in the dissertation.

Elfring et. al.'s three categories are *Discovering Opportunities*, *Securing Resources*, and *Gaining Legitimacy*. *Discovering Opportunities* describes a situation in which a micro-entrepreneur is employing his/her affiliates as a "source of new ideas" and "to locate and evaluate opportunities... ranging from potential markets for goods and services to innovations and promising new business practices." *Securing Resources* describes a situation in which a micro-entrepreneur is using his/her affiliates to "access, mobilize and deploy resources... [such as] financial and human capital.. production know-how.. distribution channels." *Obtaining Legitimacy* describes a situation in which a micro-entrepreneur is using his/her affiliates to

"organize institutional support and legitimacy..obtain a prestigious business affiliate..[establish] the venture as appropriate and conforming to accepted rules and standards."

Since this study is concerned with technology, it makes sense to distinguish between a micro-entrepreneur's technology-related social agency and his/her non-technology related social agency. Thus, Elfring et al.'s categories of activity are considered separately for technical and non-technical affiliates. A micro-entrepreneur may be a very active member of business forums. This activity would correspond to *Discovering Opportunities* with respect to non-technical affiliates. If a micro-entrepreneur hired a technical contractor, this would correspond to *Securing Resources* with respect to a technical affiliate. Finally, a micro-entrepreneur may choose not to act at all with respect to his/her technical and non-technical affiliates. This behavior is termed "passive" or as a "lack of social agency."

To summarize, micro-entrepreneurs must address their social environment in order to grow their businesses. The ways in which they do so may be described (for technical and non-technical affiliates) using the terms *Discovering Opportunities*, *Securing Resources* and *Obtaining Legitimacy*.

Choice: Technical Agency

While it is interesting to characterize a micro-entrepreneur's basic social behavior patterns using Elfring et al.'s categories, it is desirable in a study on the access and use of IT to characterize behavior toward technical affiliates, and a micro-entrepreneur's technology usage, with more granularity. Thong's consultant-vendor and vendor-only categories are employed to describe behavior toward technical affiliates. Since one of the most critical uses of IT for development appears to be as a means of communication (Heeks, 2002), micro-entrepreneur technology usage is characterized in social terms using categories defined by Zhao (Zhao, 2006)

(Miyata & Kobayashi, 2008). As well, whether technology usage is strategic or not is characterized, as is the style of technology usage (whether technology is being deployed to reduce costs or add value).

For the treatment of technical affiliates, specifically, micro-entrepreneurs' use of vendors is described. As Thong et al. (J. Y. Thong, et al., 1994) put it: "Two main approaches to engaging external expertise adopted by small businesses are : (1) The consultant-vendor and (2) the vendor-only approach. In the consultant-vendor approach, the small business engages a consultant who will provide information requirements analysis and implementation assistance, and a separate vendor who will provide hardware and software solutions. In the vendor-only approach, a small business engages a vendor who will combine consultancy service with provision of hardware and software solutions." Based on this definition, two descriptions are derived. A micro-entrepreneur's approach is described as *vendor-only* if the micro-entrepreneur uses a single vendor to both develop the requirements for a system and implement it. A micro-entrepreneur's approach is described as *consultant-vendor* if the micro-entrepreneur employs a vendor/consultant to help develop requirements, and another vendor to implement requirements.

Respecting a micro-entrepreneur's use of technology to interact with customers, three kinds of behaviors are described. These are based on Zhao's analysis of internet use from a social capital perspective. The three behaviors are: "(i) asocial activities that do not involve direct contact with other people (e.g. Web use); (ii) social use of the Internet for contact with the acquainted (e.g. email use); and (iii) social use of the Internet for contact with the unacquainted" (Miyata & Kobayashi, 2008) (Zhao, 2006). Thus the description *Asocial* applies to micro-enterprise technology activities that do not involve contact with other people. The

description *Social Acquainted* applies to micro-enterprise technology activities that involve a micro-enterprise's contact with individuals with whom the micro-enterprise has had some previous contact. The description *Social Unacquainted* applies to micro-enterprise technology activities that involve a micro-enterprise's contact with individuals with whom the micro-enterprise has had no previous contact.

To capture a micro-entrepreneur's strategy and view of IT, two kinds of description are used based on the literature. Numerous papers have suggested the importance of a firm's aligning its business processes with its IT strategy (Cragg & King, 1993) (Bergeron, Raymond, & Rivard, 2004). The fundamental question is: can a micro-entrepreneur articulate a connection between his/her business strategy and his/her use of IT? If the micro-entrepreneur can do so, or demonstrates via actions that he/she has done so, he/she is described as having an *IT Plan*. If the micro-entrepreneur cannot do so, or demonstrates via actions that he/she has not done so, he/she is described as having *No IT Plan*. Strategically speaking, a micro-entrepreneur may choose to use technology in different ways. Micro-entrepreneurial technology strategy is characterized using Levy et al.'s dichotomy of Cost/Value Added (Levy, et al., 2001). If the micro-entrepreneur's goals/functionings appeared to be primarily associated with using IT to reduce costs and overhead, he/she is described as taking a *Cost Reduction* approach. If the micro-entrepreneur's goals/functionings appeared to be primarily associated with using IT to add value to the business, he/she is characterized as taking a *Value Added* approach.

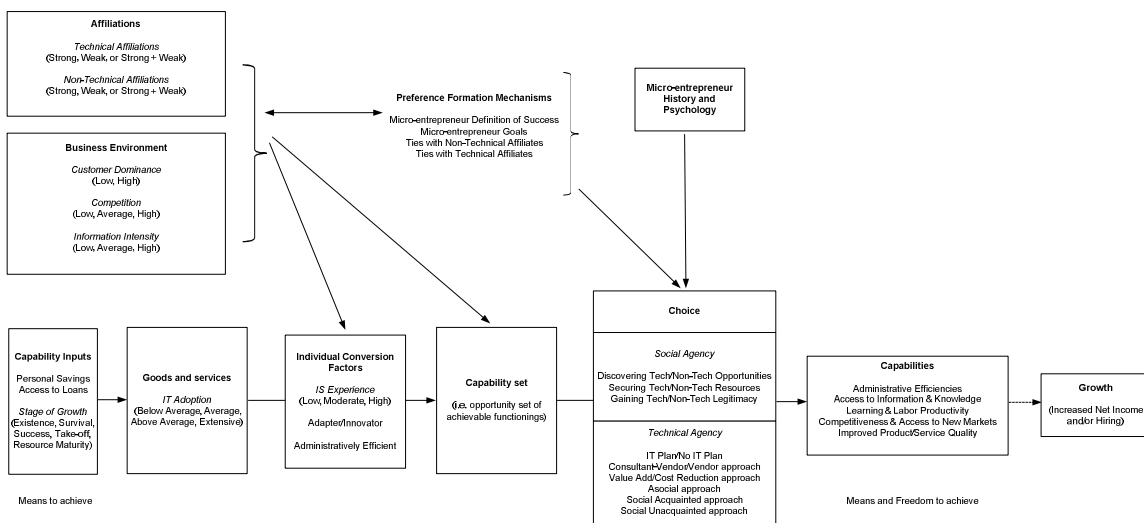
To summarize, in a study on micro-entrepreneurial behavior with respect to IT, it is helpful to capture details on the micro-entrepreneur's behavior toward technical affiliates, and technology usage. Such details are captured using the descriptive terms *vendor-only*, *consultant-*

vendor, Asocial, Social Acquainted, Social Unacquainted, IT Plan, No IT Plan, Cost Reduction and Value Added.

Analytical Framework to Investigate IT Adoption in Micro-enterprises

As previously indicated, the capability perspective is considered "underspecified." The previous paragraphs have listed and described the concepts chosen inductively through the application of the methodology in the next chapter, to specify a capability framework for the micro-enterprise IT Adoption context. This analytical framework is depicted in Figure 2 below and (at full size) in Appendix A.

Figure 2: Analytical Framework Applied to an Investigation of IT Access and Use in Micro-enterprises



Sources: Inspired by Robeyns (2005) and Sen (1999)

Figure 2 visually resembles Robeyns' diagram, but ties each of the categories to the aforementioned concepts from the IS and IT for Development literature: the concepts are listed inside each box. As depicted in the framework, a micro-entrepreneur converts his/her *Capability Inputs* (savings, enterprise functionalities) and *Goods and Services* into a *Capability Set* through the application of his/her conversion factors, that include his/her technical experience and level of innovativeness. The micro-entrepreneur then exercises social and technical agency (*Choice*)

to enable capabilities that may lead to *Growth* (increased net income and hiring) outcomes. The micro-entrepreneur's choice and conversion processes are moderated by environmental factors, including his/her affiliations, and his/her business environment. This applied analytical framework of "sensitizing concepts" (Zheng, 2009) is employed for investigating the question of what patterns of technology access and use build capabilities that enable micro-entrepreneurs to grow their businesses.

Conclusion

This theoretical background chapter situated the dissertation within existing streams of research, by explicating its connection both to development theory and a particular understanding of the IT artifact. It also provided information on the concepts used to apply Sen's analytical framework to the micro-enterprise context, and depicted and explained the applied framework. The next chapter, Research Design / Methodology, details how the concepts in the applied framework were selected, and describes in great detail the other processes associated with the research.

Chapter 3: Research Design/ Methodology

Introduction

The previous chapter introduced concepts related to an application of Amartya Sen's capability perspective to the micro-enterprise IT Adoption context. These concepts were arrived at inductively using a research design and methodology described in this chapter. This chapter describes how participants were selected for twelve cases and eight community partner interviews. It also details data collection techniques and modes of analysis.

This research follows a qualitative inductive approach involving multiple case studies. It uses Sen's capability perspective as an analytical framework of "sensitizing concepts" that guides field work and the organization and analysis of data (Patton, 2002, p. 439). The development of the analytical framework used in this research follows a strategy suggested by Robeyns (Robeyns, 2005) (Robeyns, 2006) and Zheng (Zheng, 2009) for applying Sen's capability perspective. The analytical framework is used to address the research question: *What patterns of technology access and use build capabilities that enable micro-entrepreneurs to grow their businesses?*

This study is interpretive in that it is based on the premise that although empirical 'truths' exist in the natural sciences (e.g. physics and mathematics), universal laws have not been formulated for human behavior. As interpretive research, then, it is concerned with understanding socially constructed reality, as expressed through the presentation of first order 'facts' and rich description, and with second order analytical description (storytelling, theorizing)

(Dyer Jr & Wilkins, 1991). An interpretive approach is especially appropriate for studying micro-entrepreneurs, as it can effectively capture both broad and specific contextual information that may greatly explain micro-entrepreneur behavior (Alkire, 2002) (Vargas, 2000).

This research employs a qualitative case study method informed by Yin (Yin, 2003a). Use of a qualitative case study method in the poorly understood developed-world micro-enterprise context (Schreiner & Woller, 2003), wherein social and community considerations are important (Vargas, 2000) (Duncombe & Heeks, 2002) is supported by Yin's criteria for case study usage: Yin suggests that "the distinctive need for case studies arises out of the desire to understand complex social phenomena." He suggests that case studies are an optimal strategy for answering 'how' or 'why' questions in poorly understood situations over which the investigator exercises little control, wherein "the boundaries between phenomenon and context are not clearly evident." He notes that: "[one] would use the case study method because [one] deliberately wanted to cover contextual conditions—believing that they might be highly pertinent to [the] phenomenon of study" (Yin, 2003b).

Case Studies

The study investigates the research question through twelve case studies and eight community partner/stakeholder interviews. The first eight case studies (six complete, two partial), each feature one micro-enterprise that received technology assistance as part of a program called eTeams, and leverage an average of six months of regular observation and note taking per case, alongside material from an initial screening interview and multiple post-assistance outcome evaluation interviews. The second set of cases (four cases, four micro-enterprises) consists of site observations and a single extensive interview with each of the micro-entrepreneurs chosen.

Intervention Cases

The first eight cases, which are referred to as 'intervention' cases and in which the researcher participated intensively, are evaluated primarily in terms of the effects that the micro-entrepreneurs' use of the technology provided during the assistance had on growth outcomes, where growth is defined in terms of increased income or hiring (Qiang, et al., 2006). It should be noted that all financial/hiring growth outcomes are evaluated based on the micro-entrepreneurs' indication or non-indication of such during evaluation interviews. As the researcher has no means of auditing the micro-entrepreneurs' finances, this is the most accurate indication of growth that can be captured. The cases are secondarily evaluated in terms of the micro-entrepreneurs' approach to accessing and using technology on their own after the interventions were completed, and any post-intervention growth outcomes the micro-entrepreneurs attributed specifically to their independent use of technology. Two of the cases (cases seven and eight) are partial in the sense that the micro-entrepreneurs were evaluated shortly post-intervention, as opposed to six months post-intervention.

Non-Intervention Cases

The second set of cases (four cases, four micro-enterprises) consists of site observations and a single extensive interview with each of the micro-entrepreneurs chosen. These cases, referred to as 'non-intervention' cases, are primarily evaluated in terms of the approach of the micro-entrepreneurs to independently accessing and using technology and in terms of the growth outcomes that these micro-entrepreneurs attributed specifically to their use of technology. The inclusion of both intervention and non-intervention cases strengthens the findings by balancing "inside" and "outside" perspectives (Walsham, 1995, p. 77).

Community Partner Interviews

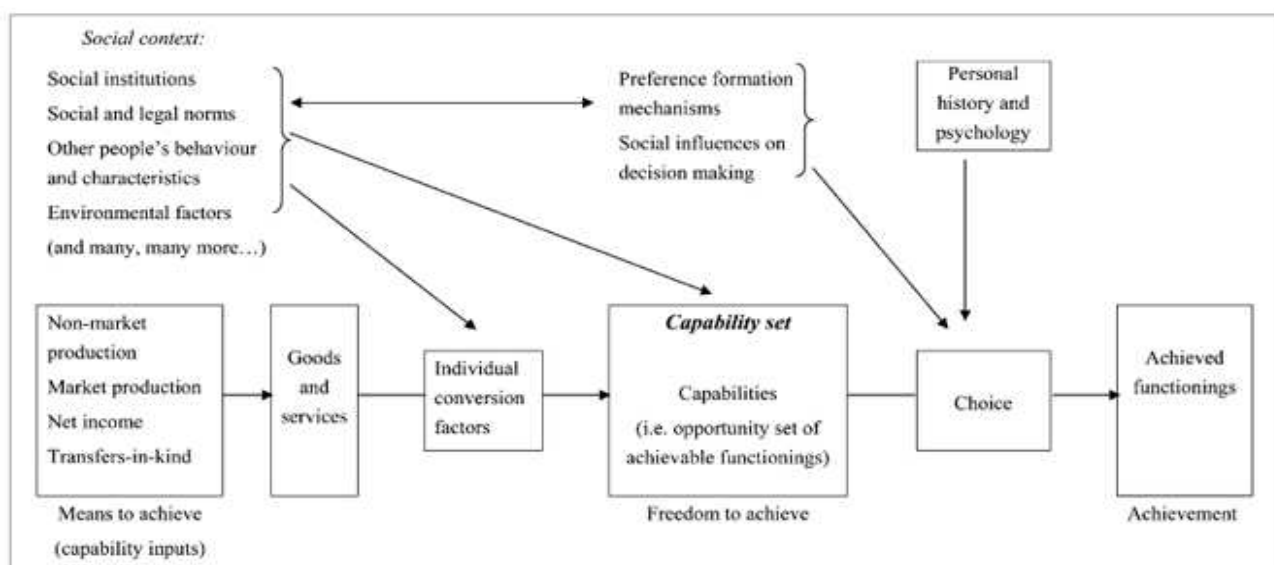
In addition to the case studies, interviews with eight community partners were conducted on the functioning of micro-entrepreneurs in the Omaha area and the kind of assistance being offered them. The use of community partner/stakeholder interviews is traditional in case study research informed by the capability perspective (Vargas, 2000) (Duncombe & Heeks, 2002); the data is collected so that the stakeholder perspectives on the human, social and economic conditions in the community may be triangulated with those of the micro-entrepreneurs.

All data is aggregated according to growth outcomes in a multiple case analysis that offers insight into the differences among the micro-entrepreneurs' approaches to technology. This description is generalized to concepts and/or theory (Lee & Baskerville, 2003) about how micro-entrepreneurs may use technology-enabled capabilities to grow their businesses.

Research Design

The research design employs qualitative inductive case study methods outlined by Yin (Yin, 2003a) alongside an innovative qualitative application of Sen's capability perspective suggested by the work of Robeyns (Robeyns, 2006) and Zheng (Zheng, 2009). Robeyns' depiction of Sen's capability perspective, used by this researcher and many other scholars attempting to apply Sen's capability perspective (Alkire, 2002; Gasper, 1997; Porter & de Wet, 2009; Robeyns, 2006; Zheng, 2009), is included below, as a reference for the paragraphs that follow.

Figure 1: Capability Set in Context



Source: Robeyns (2005)

Commenting on the application of Sen's work to various domains, Robeyns writes "The capability approach in practice comes in a variety of forms, in part because of the wide scope of the approach, but also because the approach is radically underspecified" (Robeyns, 2006). Robeyns then proceeds to offer a number of suggested steps for specifying the capability perspective to a particular domain. The steps are outlined in numbered points below. Each numbered point describes a step from Robeyns (the step is underlined) and then indicates how this research applies the step. The steps include:

1. The choice of question areas that must be addressed in order for the capability perspective to be applied to a given domain.

This step is addressed in the research through the use of Zheng's application of Sen to the area of IT for Development. Zheng's primary questions include:

- "1. What capabilities can potentially be generated from an ICT?
2. Are they appropriate for local conditions at this stage?

3. What conversion factors (personal, social, environmental) need to be in place for capabilities to be generated from a certain type of ICT?"

Zheng also lists numerous other questions in areas that she categorizes as the "Means and Ends of development, Human Diversity, Agency, and Evaluative Spaces" (Zheng, 2009). Zheng's questions were used to generate an interview guide split along her topic areas, that suggested general lines of questioning for intervention micro-enterprises, non-intervention micro-enterprises, and community partners/stakeholders. Additional, specific questions, were added based on the conduct of a pilot study, and review of literature suggested by Robeyns (Alkire, 2002). The interview guide, and the specific questions, used in the conduct of semi-structured interviews, are provided in Appendix C.

2. The collection of a rich data set that can be used to answer the questions (Robeyns, 2006) (Alkire, 2002).

The collection of a rich data set occurred as part of the researcher's work with a micro-enterprise program at UNO called the eTeams initiative, during which the researcher wrote detailed journals of observations and created records of interviews with micro-enterprises to which the researcher and other team members provided assistance. This rich field experience was supplemented with interviews from non-intervention micro-enterprises chosen using an intensity sampling strategy (Patton, 2002, p. 230) as well as interviews with community partners/stakeholders. The rationale for choosing all participants is discussed in more detail in the "Participant Selection" section.

3. The organization of the data into categories of the capability framework (including Capability Inputs, Goods and Services, Individual Conversion Factors, Social Context, Environmental Factors, and Choice (Agency)).

The organization of the data into the categories of the capability framework, is achieved through content analysis (Patton, 2002, p. 447) that places the responses to certain questions within the areas of Sen's framework as defined by Robeyns. These areas are fairly clear, although there is some overlap among topics. For instance, a participant may use a computer repair service (Goods and Services category), which also serves as a technical affiliate (Social Context category) that influences his preference formation mechanisms. In cases of overlap, care is taken to list the information in all relevant places.

4. Determination about the importance of various functionings and capabilities through a process that involves some element of community participation. For instance, Robeyns notes, "in a recent study on deprivation in affluent societies by de-Shalit and Wolff.. in order to find out which capabilities are important to assess the well-being of the disadvantaged in society, they conducted interviews with disadvantaged people, but also with the 'experts' who are dedicated to improving their quality of life. They also asked the interviewees to list their three most important functionings, in order to get a sense of which functionings are .. the most important" (Robeyns, 2006, p. 365).

Determining the importance of the functionings and capabilities described in each case, is achieved through inductive analysis, triangulation, and invitation during the open-ended interview for participants to make value judgments about contextual factors they describe (Alkire, 2002). As Patton makes clear respecting qualitative research: "There are no formulas for determining significance. No ways exist of perfectly replicating the researcher's analytical thought processes. No straightforward tests can be applied for reliability and validity. In short, no absolute rules exist except perhaps this: One must do one's very best with one's full intellect to fairly represent the data and communicate what the data reveal given the purpose of the

study" (Patton, 2002, p. 433). To facilitate this step, the researcher applies principles suggested by Klein and Myers, particularly, the Principle of Multiple Interpretations, the Principle of Suspicion, and the Principle of Interaction Between the Researchers and the Subjects; particular attention is paid to finding secondary indications of the technology use and growth indicated by the micro-entrepreneurs (Klein & Myers, 1999). The general approach, and the use of these principles is addressed in the Data Analysis section.

5. The linking of concepts from the domain literature to the functionings and capabilities that are considered important.

The linking of concepts from the domain literature to the functionings and capabilities that are considered important is achieved using a process of open coding. Open coding is "the analytic process through which concepts are identified and their properties and dimensions are discovered in data" (Patton, 2002). While open coding is often simply used on transcripts of interviews, it can also be used to represent related observations and fact patterns (Sarker, Lau, & Sahay, 2000). The process of open coding used in this research uses both interview quotes and observations to produce codes. This usage is consistent with the other qualitative applications of Sen's work and the broad scope of inquiry (Alkire, 2002). The process of linking concepts through coding is addressed in the Data Analysis section. The results section includes and defines a list of the codes applied as part of its introduction; the theoretical background specifically identifies the papers from which the codes were sourced.

6. An analysis step that proceeds in two sub-steps. The first sub-step summarizes each case in terms of the functionings contributing to the outcomes observed. The approach to weighting the importance of the functionings is analytical, rather than mathematical in qualitative case research (Zheng, 2009) (Robeyns, 2006) (Alkire, 2002).

The second sub-step involves the aggregation and comparison of the cases (in qualitative terms, placing cases side by side) according to a general principle of organization motivated by the research question.

The result of applying both steps is the generation of a domain specific application of Sen's capability perspective. This analytical framework indicates important concepts and, as employed in the analysis itself, may suggest insights about relationships among concepts.

In the first sub-step of this research's analysis, primary consideration is given to the intervention cases, each organized according to the categories in Robeyns' diagram. Some conceptual simplification (e.g. the use of Robeyns' model as opposed to a complex mathematical formulation) is necessary in the qualitative/analytic application of Sen (Alkire, 2002) (Zheng & Walsham, 2008). The focus is on the intervention cases because these are the cases in which the researcher has the most direct information about how the micro-entrepreneurs made choices to use capabilities to achieve growth outcomes, both during and after each intervention. In the event of a growth outcome, relevant concepts are highlighted and proposed relationships are indicated using simple explanatory drawings. In intervention cases where no growth occurred, key technology and non-technological reasons for the lack of growth are suggested. The non-intervention cases are treated similarly, though as less detail is available, the relationships proposed are necessarily more tentative.

In the second sub-step of this research's analysis, data on all of the cases (intervention and non-intervention) is aggregated. Cases are grouped according to the relative amount of growth achieved through the micro-entrepreneurs' use of technology, and attempts are made to find similarities among the growth-related patterns identified in the individual case analyses, and differences that might explain variations in the amount of growth achieved. As well, in this

stage, relevant thematic quotes from the community partners are introduced to enrich the discussion. As Patton comments: "In essence, when data collection has formally ended and it is time to begin the final analysis, the investigator has two primary sources to draw from in organizing the analysis: (1) The questions that were generated during the conceptual and design phases of the study, prior to fieldwork, and (2) analytic insights and interpretations that emerged during data collection" (Patton, 2002, p. 437). The focus near the end of the analysis section is to propose answers to Zheng's questions regarding: "1. What capabilities can potentially be generated from .. ICT? 2. Are they appropriate for local conditions at this stage? What conversion factors (personal, social, environmental) need to be in place for capabilities to be generated from a certain type of ICT?"

In summary, the research design employs Sen's capability perspective as an analytical framework of "sensitizing concepts" that guides field work and the organization and analysis of concepts (Patton, 2002, p. 439). The application of this framework to the research follows a strategy suggested by Zheng (Zheng, 2009) and Robeyns (Robeyns, 2006) (Robeyns, 2005) that is innovative but that adheres to accepted approaches and principles in both qualitative (Klein & Myers, 1999) (Patton, 2002) (Walsham, 1995) and case study (Yin, 2003a) research. The strategy has been detailed in the underlined steps listed previously. The linking of the description in the case studies to concepts from both IT and development produces generalizability (Lee & Baskerville, 2003)

Participants and Criteria for Selection

The participants for the study fall into two broad categories: Micro-enterprises, and community partners/stakeholders. The micro-enterprises are divided into two further categories: (1) Intervention micro-enterprises (2) Non-intervention micro-enterprises.

An IT intervention is a process in which students (termed "IT Therapists"), guided by a researcher and the expressed goals and documented requests of a micro-entrepreneur, perform hardware and software installation, develop websites, and perform training and other basic technology-related tasks designed to assist a micro-entrepreneur in growing his or her business using technology (Kamal, 2009). The process begins with an assessment interview, and continues for (on average) six months, at which point it ends. Subsequent to the end of an intervention, the micro-enterprise is evaluated so that the capabilities enabled by the intervention may be assessed. The intervention process is a highly participatory one, that emphasizes understanding and achieving goals the micro-entrepreneur considers valuable. The emphasis on participation is well aligned with the goal of collecting data that can be assessed through the capability perspective (Alkire, 2002). Intervention micro-enterprises received IT assistance from the eTeams initiative. Non-intervention micro-enterprises did not.

Both intervention and non-intervention micro-enterprises were chosen as part of a strategy of purposeful sampling. As Patton puts it: "The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases yields insights and in-depth understanding" (Patton, 2002).

The intervention cases were chosen because, besides meeting one or more of the underdevelopment criteria detailed below, they represented diverse communities within Omaha, including North Omaha (a predominantly African American neighborhood), South Omaha (a predominantly Hispanic neighborhood), and West Omaha (a predominantly Caucasian neighborhood). As well, these cases were chosen because they represented diverse types of

businesses, ranging from massage therapy to food service to advertising. This sampling strategy for intervention micro-enterprises supports the study's purpose of building theory about the range of capabilities and deprivations faced by developed world micro-entrepreneurs.

The non-intervention cases were chosen to capture a different kind of diversity: diversity among achieved functionings in terms of access and use of technology and business income. This sampling strategy is a type of purposeful sampling known as "Intensity sampling," which is defined as "selecting cases because they are unusual or special in some way." This sampling strategy for non-intervention micro-enterprises supports the study design by expanding the range of potential achieved functionings considered during the analysis phase, highlighting interesting patterns of access and use. The inclusion of both intervention and non-intervention cases strengthens the findings by offering a balance of "inside" and "outside" perspectives (Walsham, 1995, p. 77).

The intervention micro-enterprises are chosen according to following criteria (Wolcott, et al., 2007):

- Business is a sole proprietorship
- Business employs one to five individuals
- Business net income falls below twenty-five thousand dollars per year
- Business exists in an underserved community, or owner is from an undeserved group
- Business requested assistance using IT

The researcher was actively involved in the conduct of each intervention case in this study. In addition, the researcher assisted in the conduct of focus groups involving three of the eight micro-enterprises, and became highly familiar with the communities in which these micro-enterprises operated.

The second broad category of participant involved in the study, was the community partner/stakeholder. Consultation with community partners/stakeholders is a common feature of case study research inspired by the capability perspective (Vargas, 2000) (Duncombe & Heeks, 2002). Community partners/stakeholders are involved in this study to provide a perspective on the human, social, and economic environment in which the micro-entrepreneurs operate, as well as to facilitate the placement of emphasis on functionings in the case studies (Alkire, 2002). The stakeholders are asked what they view the most important deprivations and functionings of micro-enterprises in their constituent community to be. They are also asked to explain how best micro-enterprises might be helped, and are asked to offer detailed descriptions of the services that they provide in this regard. Community partners/stakeholders are selected due to their being active in the communities of the non-intervention and intervention micro-entrepreneurs. All of the micro-entrepreneurs in the study had worked with one or more of the community partner organizations interviewed. These affiliations are specifically noted in the case write-ups.

Overall, the choice of participants from diverse parts of the community and business sectors, with diverse levels of achieved functioning in relation to growth and technology, supports the goal of the study to explore patterns of technology access and use that build capabilities. The study is further strengthened by the balance of inside and outside cases, and the inclusion of community partner perspectives.

Data Collection

The primary technique employed for data collection is the interview, with supplemental notes describing relevant contextual information. If it is not possible to record an interview, key points will be detailed via typed notes as they come up. The secondary technique employed for

data collection is note taking of observations. Throughout the process, care will be taken to maintain what Yin refers to as the “chain of evidence,” which includes, in addition to raw notes, notes related to the goals of the researcher in pursuing certain lines of questioning, lists of all interviewees, and a full inventory of documents obtained during the course of the investigation (Yin, 1982) (Yin, 2003b).

Interview questions are pursued primarily using the aid of a guide informed by Zheng's topic areas. This choice is in line with widely recognized guidelines for qualitative research that specify that initial interviews with subjects should progress naturally and be open-ended to reduce the bias of the researcher's initial assumptions on the findings, and so that the researcher may consider the conceptual schemas of all participants in formulating relevant, and formal, follow-ups (Trochim & Donnelly, 2006). The format of the interviews is semi-structured, in the sense that there is a distinct progression from topic area to topic area, and questions may be repeated verbatim from a list of questions, if the conversation falters. Whenever micro-entrepreneurs indicate that growth has occurred as a result of their use of technology, effort is made to arrive at secondary indications that growth has in fact occurred for the reasons that are stated. It should be noted that some of the interviews were conducted with the aid of translators, and without recording devices due to cultural sensitivities. The pace of these interviews was slow enough that detailed notes could be taken on participant responses, but the use of an intermediary precludes the use of many direct quotes in the case write-ups. The topic areas covered in the interviews are indicated below:

Means/Ends of Development Interview Topic Area

Questions in this area will trace how enabled individual freedoms may or may not have served as a means to ME development. In this context, this reflects the ability of the individual to harness IT in service of net income growth/hiring (Sen, 1999; Zheng, 2009). All study groups will

be questioned about the beneficial/detrimental characteristics of the IT artifacts they used, as well as about the direct effects identified in Qureshi (Qureshi, 2005). Open ended questioning will be used as well, in an attempt to uncover any additional capability improvement related effects that may have resulted in net income gains for the ME.

Agency/Human Diversity Table Interview Topic Area (I. Robeyns, 2006) (Zheng, 2009)

Questions in this area will attempt to elucidate the role of the ME's technology choices and skills in determining his/her business' financial situation.

Evaluative Spaces / Commodities Interview Topic Area (Zheng, 2009) (Robeyns, 2006)

Questions in this area will attempt to clarify the financial context of the ME, and available resource inputs for ongoing operations.

Social Context Topic Area (Robeyns, 2006)

Questions in this area will attempt to identify and define the ME's affiliations and potential affiliations, as well as any existing community-level environmental challenges. All MEs will be asked to describe their support networks of friends, relatives, and social services (currently and previously). For each identified network, questions will attempt to pinpoint the role, if any, said networks played in the business' development. Questions will be posed related to any technology support MEs received from affiliates. Additionally, MEs will be asked about the role, if any, social norms played in their technology decisions.

The semi-structured interview technique is appropriate to the study design, as it captures data related to the question areas without forcing preconceived notions onto the participant. The inclusion of observations facilitates the use of triangulation to strengthen the interpretation of the data (Yin, 2003a). The full semi-structured interview guide is reproduced in Appendix C.

Mode of Analysis

As Patton notes, "Because each qualitative study is unique, the analytical approach used will be unique" (Patton, 2002, p. 433). The mode of analysis employed by the study is

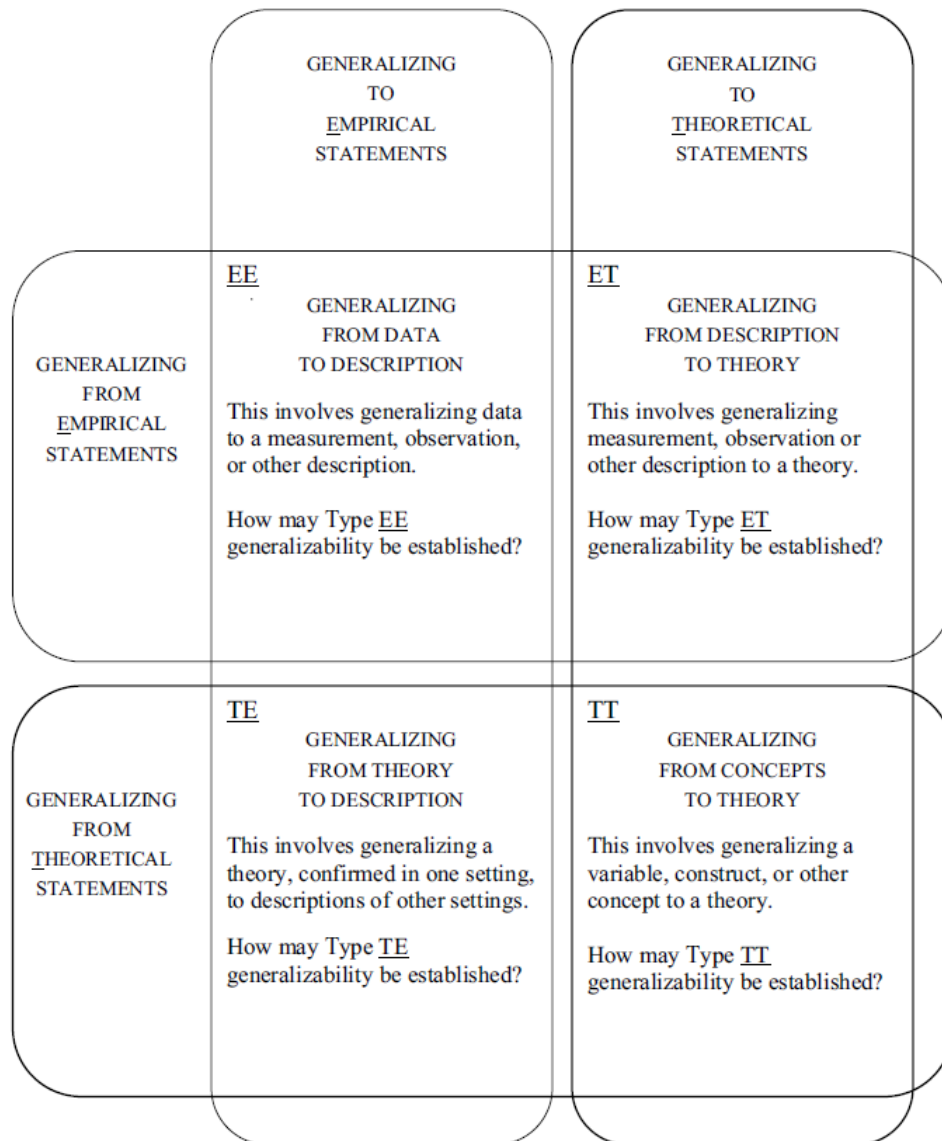
inductive. As Patton defines it: "Inductive analysis involves discovering patterns, themes, and categories in one's data. Findings emerge out of the data, through the analyst's interactions with the data" (Patton, 2002, p. 447). This inductive process is explicated by Klein and Myers as the key principle of qualitative interpretive research, the Fundamental Principle of the Hermeneutic Circle: "The process of interpretation moves from a precursory understanding of the parts to the whole and from a global understanding of the whole context back to an improved understanding of each part" (Klein & Myers, 1999). The process of interpretation in this study begins with extensive observations and semi-structured interviews on topics motivated by Zheng's application of Sen to the IT context. It then proceeds from simply identifying and categorizing the goals of micro-entrepreneurs as free and constrained within human, social, and economic spheres to relating these (goals) to concepts within the IT literature via a process of open coding, and creating relational statements linking the concepts, making theoretical comparisons, (Patton, 2002, p. 490) and producing implications about interactions that may lead to growth.

Commenting on the state of IS research, Lee and Baskerville note: "generalizations are sometimes mistakenly expected to be proven statements, rather than taken as well-founded but as-yet untested hypotheses." As these authors point out in their seminal IS paper on generalizability, statistical and qualitative induction share a common limitation: the generalizability from a sample to a population is based on the non-axiomatic principle of induction. "An increase in sample size is beneficial, but the benefits take the form of improved reliability of the sampling procedure, rather than improved generalizability of a sample to its population," the authors observe (Lee & Baskerville, 2003).

Applied in the context of this study, the limitation the authors are suggesting is that the "domain specific" application of Sen's theory applies only to the micro-enterprises in the sample. Though the sample is chosen to be as diverse as possible, there is no way to know *a priori* whether it in fact is representative of the population of interest, micro-enterprises in the developed world. This is not to say that generalization to concepts, theory, or implications is undesirable. As Patton notes: "Statements about which things appear to lead to other things, for example, which aspects of a program produce certain effects, and how processes lead to outcomes are natural areas for interpretation and hypothesizing. When careful study of the data gives rise to ideas about causal linkages, there is no reason to deny those interested in the study's result the benefit of those insights. What is important is that such statements be clearly qualified as what they are: interpretation and hypothesizing" (Patton, 2002, p. 478).

Lee and Baskerville define a typology of generalizability in qualitative research. This is depicted in the graphic below, Figure 3:

Figure 3: Lee and Baskerville's Typology of Generalizability



Source: Lee and Baskerville (2003)

Under Lee and Baskerville's typology, the form of generalizing that this research employs is type "ET," generalizing from description to theory. Lee and Baskerville indicate that ET generalization involves "The generalizability of measurements, observations, or other descriptions to theory, and the generalizability of the resulting theory beyond the sample or

domain that the researcher observes (such as the unsampled portion of the population or the parts of the organization where the field worker has neither conducted interviews nor collected data in other ways)."

This research essentially involves the descriptive organization of information that is related to Sen's analytical framework. As is presented in detail in the study design section, the description captured is categorized and coded in a way that relates it to a domain specific version of the capability perspective; this is the application of the analytical framework to the domain (Zheng, 2009) (Robeyns, 2006) (Robeyns, 2005). Although this design is innovative, it adheres to accepted approaches and principles in both qualitative (Klein & Myers, 1999) (Patton, 2002) (Walsham, 1995) and case study (Yin, 2003a) research, corresponding to Lee and Baskerville's type ET. The approaches used are now highlighted.

The primary technique employed is generally referred to as content analysis: "Content analysis is used to refer to any qualitative data reduction and sense making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings" (Patton, 2002, p. 447). Content analysis is used to organize the transcripts and observations thematically and categorically. A specific type of content analysis is used to generate codes that succinctly express certain phenomena related to concepts from the IT and Development literature. This technique is called open coding. Open coding is guided by definitions from the literature. The definitions for the codes arrived at for use in this research are provided in the theoretical background section, and are summarized in table format in Appendix B. Wherever a code is applied, the reasons for the application are succinctly stated in the text. The codes add additional concepts to help specify Sen's analytical framework in the domain of IT access and use by micro-enterprises, in a manner suggested by Robeyns (Robeyns, 2006). Additional

techniques used include "relational statements" (for statements linking the category areas in this specification of Sen's framework) and "theoretical comparisons" (used, for example, in comparing an achieved functioning to the space of potential functionings) (Patton, 2002, p. 123).

Besides employing these specific techniques, this research also adheres to Klein and Myers' principles of interpretive research (Klein & Myers, 1999). Special attention is paid to the Principle of Suspicion in assessing both the use of IT, and claims that IT use resulted in growth outcomes: wherever possible, secondary observations are made, be these through the questioning of community partners, observation of website usage statistics, or other means.

Conclusion

The research design of the study proposed is that of the qualitative inductive multiple case study, following the interpretivist line of IS Research, that uses Sen's capability perspective as an analytical framework of "sensitizing concepts" that guides field work and the organization and analysis of data (Patton, 2002, p. 439) related to an important but under-researched problem domain: that of the developed world micro-entrepreneur. This chapter has detailed the theory and application of a novel research design that makes reference to proven concepts in qualitative research. The next chapter presents the results of a pilot study that served as a test of the usefulness of the capability perspective in the generation of both theoretical and practical insights.

Chapter 4: Pilot Study

Introduction/Background

During the course of the literature review, it became evident that qualitative applications of Sen's capability perspective directly to the area of Information Technology for Development were essentially absent (Gasper, 1997) (Robeyns, 2006). In fact, it was initially unclear whether or not the concepts *could* be applied to the context at all in this way.

Given the dearth of available information, the researcher decided that it would be prudent to make an effort to apply these concepts to existing data. The researcher was fortunate in that ongoing research, conducted for the eTeams initiative at the University of Nebraska at Omaha, involved in-depth observations of technology interventions for micro-enterprises, and the extensive use of open-ended questioning that could provide the basis for such post-hoc analysis.

Due to the use of existing IRB-approved instruments and techniques, certain concepts could not be analyzed at a high level of detail. Nonetheless, the application of other concepts to the context provided the researcher with a number of insights that inform the current study design, especially the choice to include non-intervention micro-enterprises as well as community partners/stakeholders. The organization of the case study is the prototype for the organization of the later case studies, and served as the jumping off point for the inductive discovery of the concepts appearing at the end of the theoretical background section.

This case study was presented at the "Big 12" conference alongside a draft of this research proposal (Good, 2010), and reflects some of the feedback from that review. The case study attempts to represent 'direct effects' and 'indirect effects;' this approach was revised in subsequent case studies but it remains as part of the record of the development of the research, herein. The pilot study is now presented.

Preliminary Results from Pilot Study

The case study below, conducted over the course of six months and based on upon two formal recorded interviews (pre and post) as well as a wealth of written observations, describes the inputs on a micro-entrepreneur, his goals, and the mapping between the IT intervention performed and said goals. Additionally, it breaks out the effects of the IT interventions across the capability space, categorizing both potential and observed direct and indirect effects, where direct effects are economic outcomes specified by Qureshi's 2005 framework (Qureshi, 2005), and indirect effects are secondary consequences of the direct effect and non-economic effects. The space of potential effects is posited from the researcher's experience with, and knowledge of, the micro-entrepreneur and the likely future outcome(s) of his/her use of IT.

It is important to document the micro-entrepreneur's goals because a proper application of Sen's capability perspective requires a mapping among outcomes and aspirations (Zheng, 2009). From the case study perspective (Yin, 2003b), it is also critical to illustrate the IT therapist's role in affecting the situation. The therapist's thought process surrounding the goal/intervention mapping is thus described.

Case 1: PN, Mexican Bakery

The pastel-colored PN Mexican-American bakery sits in the heart of South Omaha; it is one of two such bakeries within walking distance from South Omaha's residential neighborhoods. Its regular products include bread and pastries. PN's specialty lies in designing attractive and structurally complex cakes for special occasions, such as 'sweet fifteen' parties, birthdays, weddings, and family gatherings. PN has been operating since 2002, and has won awards from organizations such as the Hispanic Chamber of Commerce, for both entrepreneurship and product quality. The sweet-smelling interior of PN is cramped, crammed as it is by glass pastry display cases, a drink fridge, a cake display case, and a vendor counter hawking phone cards, lottery tickets and the services of other area businesses such as a Mexican travel agency.

PN is owned by a Mexican-American immigrant, AM. AM originally worked temporary construction jobs before learning the craft of baking from his brother, who had set up a bakery in Pennsylvania. When he felt he had saved up enough money from his construction work, AM moved to Nebraska and incorporated his own bakery. He employs four individuals, including another brother. Two of his four employees are full time. AM works sixty to eighty hours a week baking as well as managing the other employees. His business has been consistently, though not tremendously, profitable. Its success at all is particularly noteworthy given that AM possesses only the equivalent of a second grade education. AM lives in a tiny apartment one block away from his business. After a full day of work, he will often return home only briefly before leaving for technology night classes at the local Juan Diego center.

Micro-enterprise Goals

AM's main ambition is to double the size of his shop so that it is less cramped and can accommodate a café section, along the lines of what is done at Panera. For that, he needs more money and better control of his business. Asked to articulate what he meant by control, PN indicated that he was interested in mastering technology as a means to better monitoring his costs and the performance of his employees, and managing his supply network. He expressed a desire to learn the QuickBooks accounting software so that he could perform accounting functions rather than outsourcing said functions to another entrepreneur. He also expressed a wish to learn PowerPoint so that he could market his business to investors and customers attending Latino-themed gatherings. AM was interested in the idea of creating a website, but had little concept about what that might entail. Generally, AM said that he wished he could 'use Windows and the Internet better' so that he could stop wasting time on technical issues and focus on the core of his business.

Micro-enterprise Means

AM's net income derives exclusively from the profits earned by PN. He produces baked goods via his own labor and the labor of his employees. His baking equipment consists of industrial blenders, ovens, and refrigeration units. AM owns an obsolete desktop computer that sits in PN's back office. At the beginning of the intervention, he had one primary supplier for flour and other materials. He communicated with that supplier via lists of 'goods required.' In terms of services, PN received heating, electricity and telephone services from standard Omaha area providers. PN has Cable Internet service, and AM has Cable Internet service at home. PN outsources its accounting services to another micro-enterprise. PN has no legal counsel; AM

approaches free legal service centers when the need arises. Figure 4, below, depicts the goods and services that act as inputs to AM and PN.

Figure 4: Goods and Services that Act As Inputs on PN

Goods

- Baking equipment (blenders, ovens, refrigeration units)
- Baking materials (flour, sugar, etc.)
- Desktop computer (Windows 98)

Services

- Heating, Electricity, Water, Phone
- Cable Internet (Home and Work)
- Accounting (Outsourced)
- Legal (Volunteer Groups)

AM had received no individualized technical assistance, nor did he have any friends or family with computer skills. He was taking Excel classes at the Juan Diego center at the time of the first meeting. He commented that he used the Hispanic chamber of commerce as an aid for establishing business relationships. AM did not have outstanding business loans, or ongoing relationships with a financial institution outside of a business checking account. Figure 5, below, depicts AM's affiliations.

Figure 5: AM's Affiliations

- Juan Diego Center (Technical Training)
- Hispanic Chamber of Commerce (Business Connections)

Micro-enterprise Achieved Functionings and Deprivations

AM was skilled at running his business using only pen and paper. Practically speaking, he had decent control of his employees and costs. From a human standpoint, AM possessed demonstrable ambition, discipline, and time management skills. IT-wise, he had an extremely basic mastery of Windows, Excel, and Internet Explorer. Socially speaking, he had achieved a moderate degree of success connecting to the Hispanic community, mostly through his participation in the Hispanic Chamber of Commerce and via word-of-mouth generated by his

novelty cakes. Economically, he was maintaining a standard of living that was not luxurious but that rose above subsistence level; he had savings and limited discretionary income.

Still, AM suffered from significant deprivations that were largely human and social in nature. On a human level, AM's primary handicap was his limited comprehension of, and ability to communicate using, English (This was particularly problematic given that AM's only computer was configured to use English versions of both Windows and Microsoft Office). AM lacked knowledge about, and the ability to use, common software. Finally, he lacked time to devote to building his linguistic and technical skills. The three aforementioned deprivations in combination made it very difficult for AM to learn new technology or business skills, expand his social and business network outside of the Hispanic community, or access financial resources that might help him grow his business operations. From a social standpoint, AM suffered from a deprivation in terms of his (lack of) access to Spanish-speaking individuals who could offer him personalized technology advice or assistance. Essentially, AM exists in a community that is not very technology savvy. Though AM found skills training programs helpful, these programs were not adequate for his individual needs. Relatedly, from an economic standpoint, AM needed a mobile computer to run PowerPoint and upon which to practice his skills; although he possessed the funds to upgrade, AM could not turn to anyone for advice on *what* to upgrade to.

IT Interventions (Role of the IT Therapist)

From the vantage point of Sen, an ideal IT intervention would be one that addresses, to some degree, both the micro-entrepreneur's deprivations and his or her goals. The IT therapists in this case felt that AM's primary technologically addressable deprivation was in the social sphere. They believed that improving AM's ability to communicate outside of his community

and existing supply chain would be crucial for him as he sought to gain better control over his business.

One goal of the intervention was to increase *AM's* ability to connect with others on his own. This was accomplished through training AM on PowerPoint, web search, and email.

Another goal of the intervention was to make it easier for *others* to connect with AM. This goal entailed the creation of a website that would present AM and his business in a favorable light, and that would be readily discoverable by search engines. The table below describes the interventions performed, alongside the relationships that the researchers *perceived* as existing between a given intervention and the micro-entrepreneur's goals and deprivations.

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Laptop purchase (Access)	Improved marketing of business, Mastery of basic computer skills	<i>Underpowered, immobile computing hardware</i>
Installation of Spanish-language versions of software (Use)	More efficient management of business	Poor English Skills, Lack of time
Training on PowerPoint (Use)	Improved marketing of business	Poor technology skills
Training on email usage (Use)	Supply network management	Poor technology skills, Limited ability to expand business network
Creation of basic website (Access)	Improved marketing of business	Limited ability to expand business network
Training on maintenance of website (Use)	More efficient management of business, Improved marketing of business	Poor technology skills, Poor knowledge about technology
Training on basics of web searching (Use)	More efficient management of business, Poor technology skills	Limited ability to expand business knowledge

Table 9: IT Interventions in light of Goal and Deprivation Considerations

Capabilities Enabled

AM indicated in his evaluation interview that he had benefited greatly from the IT intervention. The table below highlights the interventions performed alongside the direct and

indirect outcomes recorded as well as the likely potential future outcomes. Commentary follows after the table.

#	Means IT Intervention	Freedom		Ends (Outcomes / Capabilities)	
		Potential Direct Functionings	Potential Indirect Functionings	Achieved Direct Functionings	Achieved Indirect Functionings
1	Laptop purchase	Access to Information and Knowledge (on the go)	Ability to perform class exercises on laptop	Productivity, Administrative Efficiencies (Ability to manage suppliers from home)	Ability to practice Windows skills more, Time Savings, Sense of control
2	Installation of Spanish-language software	Administrative Efficiencies (Use of Spanish language Excel for cost mapping)	Improved conceptual model of software, Improved ability to solve problems independently	Productivity, Access to Information and Knowledge (via use of Spanish IE)	Learning, Reduced Fear, Lower Stress, Time Savings
3	Training on PowerPoint	Access to New Markets (via business presentations)			Improved Confidence, Increased Willingness to take formal PowerPoint classes
4	Training on email usage		Ability to better communicate with family and friends	Administrative Efficiencies (ordering), Access to Information and Knowledge (conversations with suppliers)	Time Savings
5	Creation of basic website	Access to New Markets	Enhanced Reputation, Branding		Enhanced Business Self-Awareness
6	Training on Maintenance of Website		Ability to expand and alter website content to meet market demands	Administrative Efficiencies	Sense of Control
7	Training on search engines / search techniques	Access to New Markets (Customers)	Improved English Language Skills, Improved US Cultural Fluency, Access to information on Business	Access to New Markets (Suppliers, B2B), Access to Information and Knowledge, Administrative Efficiencies	Cost Savings (Competing Suppliers), Quality Improvements (Better Supplies), Product Innovations (New Cake Designs), Apprehension of business trends

			exemplars (successful Mexican bakery stories), Many, many others...		(Popularity of particular Mexican cakes and pastries), Awareness of Competition, Awareness of trends
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Table 10: IT Interventions in light of Goal and Deprivation Considerations

The purchase of a laptop enabled AM to devote downtime at work to practicing his skills. He would, for example, send ‘dummy’ emails to our IT therapists to improve his confidence with the email client. In future, it is likely he will be able to take the laptop to class with him, which may not only further improve his confidence but also allow him to pose questions about concrete work problems directly to instructors, as he will have all the information related to said problems, in front of him.

AM had experienced particular difficulties with his original Windows machine as all of the software, including the operating system, had been installed in English. Error messages would pop up, and AM would find himself completely unable to interpret them. The strange messages coupled with the red ‘boxes’ associated with the typical error message had heightened his fears and decreased his sense of control over the original machine and operating system. He told the researcher that he had felt before that if something went wrong, or ‘broke,’ he would be completely unable to fix it, and that this had greatly lessened his willingness to use his computer. Installation of appropriate software allowed AM to experience software packages as he had learned them at the Juan Diego Center— with a Spanish interface, error messages, dialog boxes, etc. AM was very enthusiastic about Spanish language Internet Explorer; he had used the English language version so infrequently that using the Spanish version felt like surfing the Internet for the first time. It is likely that AM’s use of the Spanish language software will allow him to improve his conceptual model of software function, and ultimately, aid him in solving his own problems.

AM received extensive instruction on PowerPoint as part of the IT intervention.

Although he expressed gratitude for this instruction, the researcher did not see tangible benefits during the course of our IT intervention arising out of his usage of PowerPoint. The instruction did seem to 'demystify' the application for him; he stated that he is more likely now to take formal classes related to it in the future. It is likely that the PowerPoint Instruction enabled the potential for AM to use PowerPoint in his marketing.

AM had some trouble typing, so the IT therapists gave him typing practice exercises that required him to write simple emails to them. As discussed in a subsequent paragraph, the IT therapists had no idea how significant AM's use of email would prove to be when coupled with his Internet search training.

AM lacked a web presence. Building a website for him using WordPress seemed to offer him a good value with respect to connecting to members of the Hispanic and English communities and in marketing his business. Certainly, the design process, the necessity to make a pitch, and have overriding themes made AM more aware of his business' focus, as well as its strengths and weaknesses. It is likely that, at business-related social gatherings, AM's website will enhance his standing in the community. Already AM has undertaken to redo his business cards and the paint job on his delivery truck in order to highlight the website. AM was trained on updating the site; it seems this training improved his sense of control over his business.

Something unexpected occurred as a result of the Internet search and email training conducted. On his own, as became evident in the evaluation interview, AM had begun a regular practice of researching commodities suppliers (flour, sugar, frosting, etc.). When he found suppliers that he liked, AM would email them requesting further information, discounts, and so forth. In several cases, AM had the providers compete with each other for his business. This whole process resulted, according to AM, in cost savings of fifteen to twenty percent and

significant quality improvements compared to his previous business practice of using a single supplier. AM also independently began a program of researching trends in Mexican consumer preferences. He sought out imagery of cake constructions from prominent Mexican bakeries and by the time of the final evaluation, had begun using these as inspirations for innovative new product designs. As AM's word-of-mouth marketing had been built largely around his elaborate cake constructions, it is hard to overstate the significance of his using the Internet to generate ideas for even more impressive cakes. As well, AM informed the researcher, when he encountered design issues (lack of particular cake toppers, for instance), he could now find suppliers located in Mexico. AM indicated that he would email said suppliers with his orders, and arrange payment over telephone; he said that he did not trust or understand e-commerce in the form of online checkout, etc.

Deprivations Remaining

Although AM achieved great success in a short amount of time, the IT interventions did not help him significantly improve his English language skills directly or indirectly. In fact, slightly over half of the researchers' interactions with AM were purely in Spanish. AM commented that he was running a bakery 'for Hispanics;' it seems that he still lacks meaningful ties to the mainstream Omaha community. Although it is hoped that his newfound facility with the Internet improves AM's English comprehension, the only English-language websites he visited routinely were those of suppliers. His research of trends in consumer preferences and with respect to cake designs was conducted in Spanish, through Spanish-language Google. Financially speaking, AM is better off now as a result of his own ingenuity coupled with the training interventions. It is hoped that his website and his continued innovation will allow him to expand his business

network further, but that is far from a given. Finally, the researchers could not offer AM any assistance in managing his employees using technology.

Conclusion

This chapter described the results of a pilot study conducted to determine whether it was possible to produce a qualitative application of Sen's capability perspective in the micro-enterprise context that could offer some analytical insights. The study involved post-hoc analysis of data obtained during the course of a project for the eTeams initiative at the University of Nebraska at Omaha. The study centered on a micro-enterprise, a bakery in the under-developed community of South Omaha. The case study concluded that technology enabled a variety of well-being enhancing capabilities for this micro-enterprise, but that significant deprivations remained. The result of the case study, from the vantage point of the dissertation, is that the researcher determined it was possible to apply the capability perspective in a qualitative way. The case study is provided to illustrate how rich description and the use of some of these constructs can aid the reader, and potentially serve as the basis for theory generation about the importance of different capabilities for the growth of micro-enterprises.

Chapter 5: Results and Analysis

Introduction

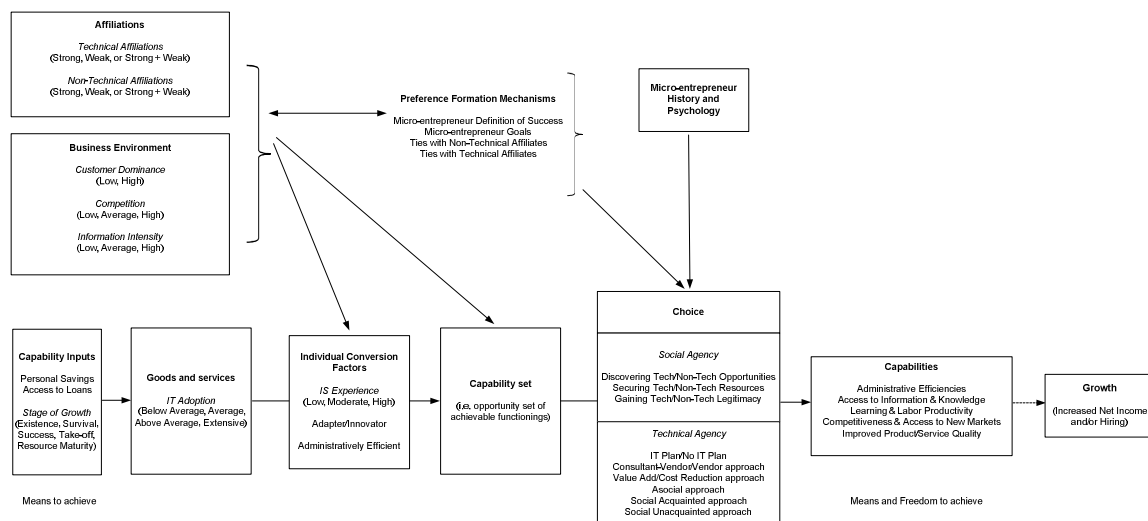
In this chapter, the results of case studies on intervention and non-intervention micro-enterprises are presented. Twelve case studies are included: eight intervention case studies, and four non-intervention case studies. Each case deals with one micro-enterprise. Both intervention and non-intervention micro-enterprises were chosen as part of a strategy of purposeful sampling. The intervention cases were chosen because, besides meeting underdevelopment criteria, they represented diverse communities across Omaha, including North Omaha (a predominantly African American neighborhood), South Omaha (a predominantly Hispanic neighborhood), and West Omaha (a predominantly Caucasian neighborhood). As well, these cases were chosen because they represented diverse types of businesses, ranging from massage therapy to food service to advertising. This sampling strategy for intervention micro-enterprises supports the study's purpose of building theory about the range of capabilities and deprivations faced by developed world micro-entrepreneurs. The non-intervention cases were chosen to capture a different kind of diversity: a diversity among achieved functionings in terms of access and use of technology and business income. This sampling strategy is a type of purposeful sampling known as "Intensity sampling" (Patton, 2002). This sampling strategy for non-intervention micro-enterprises supports the study design by expanding the range of potential achieved functionings considered during the analysis phase, highlighting interesting patterns of access and use.

The first eight case studies (six complete, two partial), each feature one micro-enterprise that received technology assistance as part of a program called eTeams, and leverage an average of six months of regular observation and note taking per case, alongside material from an initial screening interview and multiple post-assistance outcome evaluation interviews. The intervention cases are evaluated primarily in terms of the effects that the micro-entrepreneurs' use of the technology provided during the assistance had on growth outcomes, where growth is defined in terms of increased income or hiring (Qiang, et al., 2006).

The second set of cases (four cases, four micro-enterprises) is driven by site observations and a single extensive interview with each of the micro-entrepreneurs chosen. These cases, referred to as 'non-intervention' cases, are primarily evaluated in terms of the approach these micro-entrepreneurs took to independently accessing and using technology, and any growth outcomes they attributed specifically to their use of technology.

Data from both sets of cases is organized for readability, as well as to capture all of the concepts contained within the analytical framework developed in the theoretical background section. This analytical framework, an application of Sen's capability perspective to the micro-enterprise IT Adoption context, is reproduced in Figure 2 (repeated below, from Chapter 2; full-size version is contained in Appendix A).

Figure 2: Analytical Framework Applied to an Investigation of IT Access and Use in Micro-enterprises



Sources: Inspired by Robeyns (2005) and Sen (1999)

Concepts related to this framework were coded for each case. A full table of the codes/code definitions is provided in Appendix B. The codes are broken out with explanations within the text of each case to aid the reader's understanding of how the researcher arrived at the coding. As an example, the box below describes how a micro-enterprise was assigned the deprivation "Non-Technical Affiliations: Social Exclusion."

Deprivation : Based on the micro-enterprise having no ties to community programs or groups, or to any other businesses, this micro-enterprise is assigned the deprivation **Non-Technical Affiliations: Social Exclusion**

The structure of presentation of each case (with the exception of Case 1, for reasons explained in the text) is as follows:

1. Scene Setting : Background on the micro-enterprise's history is provided to orient the reader to the micro-entrepreneur's situation.

2. Micro-enterprise Goals : The goals of the micro-enterprise (micro-entrepreneur, most often, as most of these businesses are sole proprietorships) are presented.

3. Micro-enterprise Means : The capability inputs on the micro-enterprise (savings, loans, income) are defined, as are the commodities (goods and services) accessed by the micro-entrepreneur. As well, the micro-enterprise's achieved stage of growth is presented. This section is used to characterize the micro-entrepreneur's level of IT Adoption.

4. Non-technical Affiliations : Information about the micro-entrepreneur's acquaintances, partners, and other associates who assist him/her in a non-technical capacity is presented. As well, the micro-entrepreneur's agency with respect to these affiliates (whether he/she uses them to discover opportunities, for example) is presented.

5. Technical Affiliations : Information about the micro-entrepreneur's associates who assist him/her in a technical capacity is presented. As well, the micro-entrepreneur's agency with respect to these technical affiliates (whether he/she uses them to secure technical resources via the development of a website, for example) is offered.

6. Business and Financial Environment : The business context of the micro-enterprise is presented, with attention being paid to the level of competition the micro-enterprise experiences, and the information intensity of the business.

7. Micro-entrepreneur's Technical Experience : The micro-entrepreneur's level of IS Experience is characterized. Challenges related to the micro-entrepreneur's use of technology are often identified in this section, as well.

8. Business Processes : This section captures information about the efficiency or inefficiency of different processes within the micro-enterprise. It is also used to characterize the micro-entrepreneur's agency with respect to relevant technical and non-technical affiliates. Of particular interest is the micro-entrepreneur's electronic communication style, referring to whether the micro-entrepreneur communicates with affiliates whom he knows or does not know (or both) by electronic means, or whether the micro-entrepreneur's use of technology is asocial.

9. Micro-enterprise Achieved Functionings : This section offers a general summary of the codes and observations presented in the sections preceding it. It defines the micro-entrepreneur's situation up to the point corresponding to the box indicating "Capabilities" in the analytical framework diagram.

10. Micro-enterprise Deprivations : This section synthesizes the deprivations faced by the micro-entrepreneur and presents a consolidated table of deprivation codes.

11. IT Interventions [Intervention Cases Only] : This section describes the actions of the researcher and fellow students on eTeams in assisting a micro-entrepreneur achieve his/her technology goals. It also describes how these actions addressed deprivations present in the micro-entrepreneur's situation.

12. Capabilities Enabled by Intervention [Intervention Cases Only] : This section indicates what capabilities (freedoms) the micro-entrepreneur gained as a result of the intervention. It also lists codes that changed post-intervention.

13. Deprivations Remaining After Intervention [Intervention Cases Only] : This section indicates what challenges remained for the micro-entrepreneur.

14. Post-Intervention Patterns of Access and Use [Intervention Cases Only] : If the micro-entrepreneur volunteered during an interview information about his/her technology usage during the time period following the intervention, and indicated that this usage caused growth in his/her business, the micro-entrepreneur's narrative is presented and coded in this section.

15. Case Analysis (Step 1) : In this section, the first sub-step of the analysis method suggested by Zheng (Zheng, 2009) and Robeyns (Robeyns, 2006) is applied. This step involves generalizing the description in the case to theory (Lee & Baskerville, 2003). In the event of a growth outcome, relevant concepts are highlighted and proposed relationships are indicated using simple explanatory drawings. In intervention cases where no growth occurred, key technology and non-technological reasons for the lack of growth using IT are suggested

The table below, C0, indicates the micro-enterprises included in the study, and summarizes the technology related growth outcomes in each case. The detailed case studies follow after the break.

Micro-enterprise Case Studies

Table C0. Case Synopses

Community	Case Study	MC	Group	IT Access / Use	Tech-Related Growth (Y/N)	Growth-Related Capabilities / Deprivations
South Omaha	1	Bakery	Intervention	Training on email usage and search techniques	Yes	Administrative Efficiencies (ordering), Access to Information and Knowledge (conversations with suppliers)
West Omaha	2	Furniture Store	Intervention	Creation of a basic website	Yes	Competitiveness and Access to New Markets
West Omaha	3	Marketing	Intervention	Creation of custom software tool	Yes	Administrative Efficiencies, Service Quality
North Omaha	4	Massage Therapy	Intervention	Training on Open Office and Massage Office Pro, data transfer to Laptop	Yes	Administrative Efficiencies, Service Quality
South Omaha	5	Online Boutique	Intervention	No	No	Lack of Savings Lack of Access to Loans
South Omaha	6	Restaurant	Intervention	Creation of basic website	No	Lack of Income / Savings Lack of Access to Loans
West Omaha	7	Interior Design	Intervention <i>(Partial Case)</i>	Creation of a basic website with a gallery	N/A	Health Issues
West Omaha	8	Green Energy	Intervention <i>(Partial Case)</i>	Development Research	No	Health Issues, Lack of Savings, Administratively Inefficient
North	9	Phone	Non-	Access to	Yes	Service Quality,

Omaha		Store	Intervention	and Use of Web Portal, Mass Mailer		Administrative Efficiencies
West Omaha	10	Environmental Cleaning	Non-Intervention	Office Productivity	No	Knowledge Barriers and Staff Resistance, Lack of Top Management Engagement
West Omaha	11	Advertising Business	Non-Intervention	Graphic Design Software	No	Lack of Income/Savings,
West Omaha	12	Environmental Surveying	Non-Intervention	Office Productivity	No	Poor Organization Knowledge Barriers and Staff Resistance

Case Study 1: Bakery (Pilot Study: See Last Chapter)

This research, proceeding inductively, linked a number of concepts from the literature to Sen's capability perspective, to produce a version of that analytical framework applied to the domain of micro-enterprises. The data collected from the pilot study proved rich enough that this analytical framework could be applied to the pilot to produce codings consistent with the other codings in this chapter. Below, is a table indicating the achieved functionings of the bakery prior to the IT intervention. Explanation of the how the codings were derived is provided after the table, followed by a discussion of the codes added to reflect the outcomes of the intervention, and an analysis of the case.

Table C1. Case 1 Achieved Functionings

<p><u>Achieved Functioning Coding Synopsis:</u> Stage of Growth : Success Adapter/Innovator : Adapter IT Adoption : Below Average IT Adoption IS Experience : Low IS Experience</p>
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Agency Coding Synopsis:**Technical Agency : IT Plan****Technical Agency (Value Added/Cost Reduction) : Cost Reduction****Technical Agency : Asocial (Office Productivity)****Social Agency : Securing Resources (Non-Technical Affiliates), Discovering Opportunities (Non-technical Affiliates)****Environmental Conditions Coding Synopsis:****Customer Dominance : Low Customer Dominance****Business Environment : Average Competition, Average Information Intensity****Non-technical Affiliation: Weak tie (Business network)****Deprivations Coding Synopsis:****Poor Infrastructure****Poor English Skills****Knowledge barriers and Staff Resistance****Non-technical Affiliations: Social Exclusion (from English-speaking community)****Non-technical Affiliations: Social Exclusion (from Raw Materials vendors)****Poor Organization***Achieved Functionings*

Based on the micro-enterprise's having been in operation for six years and having steady profits, the stage of growth assigned to this micro-enterprise is *Success*. Since AM did not use the Internet, or an accounting application, PN is assigned the code of *Below Average IT Adoption*. As AM expressed that he wished to use IT to grow his existing business rather than transform it, PN is assigned the code of *Adapter*. Since AM only used a computer at work, his IS Experience level is coded as *Low IS Experience*.

Technical Agency

Based on AM's description of how he wished to use IT to gain better control of his business, and his ability to relate IT investments to potential cost savings, the micro-enterprise is assigned the code *IT Plan*. Based on AM's description about his desire to use accounting software and cost monitoring to reduce his overhead, AM's approach to IT is coded as *Cost Reduction*. Based on AM's description, he primarily viewed technology as a tool to improve

efficiencies. Therefore, the micro-enterprise's technical agency is assigned the code *Asocial* approach.

Social Agency

Based on AM's limited association with the Hispanic Chamber of Commerce and the Juan Diego Center, the micro-enterprise is assigned the code of *Non-technical affiliations: Weak ties (Business network)*. As AM expressed an interest in marketing his business to potential investors, and stated a desire to find ways to connect to the English-speaking community, AM is assigned the codes *Discovering Opportunities (Non-technical Affiliates)* and *Securing Resources (Non-technical Affiliates)*.

Environmental Conditions

Based on the micro-enterprise's having many customers, the PN is assigned the status of *Low Customer Dominance*. Due to AM's need to adapt his cake designs to local and seasonal demand, an activity requiring research, the micro-enterprise is assigned the code *Average Information Intensity*. Based on AM having a few direct customers but a product that is easily substituted, the micro-enterprise environment receives the coding *Average Competition*.

Deprivations

Based on the fact that AM had a very poorly functioning desktop computer, PN is coded with *Poor Infrastructure*. AM's language deficits are coded with *Poor English Skills*. AM's frustration with technology and lack of time to learn it due to his high workload is coded as *Knowledge Barriers and Staff Resistance*. AM's repeated comments about his inability to reach the English-speaking community are coded as *Non-technical Affiliations: Social Exclusion (from English-speaking community)*. Although it was not known at the outset of the case, the fact that

AM only had contact with one raw materials vendor was significant, and is represented as: *Non-technical Affiliations: Social Exclusion (from Raw Materials vendors)*.

Capabilities Enabled by Intervention

As the coding scheme representing capabilities enabled was not changed during the analysis phase of the study, the table content present is equivalent to that found in the pilot study. The number of columns, however, has been reduced to increase the visibility of growth-related outcomes.

Table C1PE. Capabilities Enabled by Intervention, Summary

Intervention	Capability Enabled	Growth Related?
Laptop Purchase	Learning and Labor Productivity, Access to Information and Knowledge, Administrative Efficiencies	No
Installation of Spanish Language Software	Learning and Labor Productivity, Access to Information and Knowledge	No
Training on PowerPoint	Access to New Markets	No
Training on email usage	Administrative Efficiencies (ordering), Access to Information and Knowledge (conversations with suppliers)	<u>Yes</u>
Creation of basic website	Access to New Markets	No
Training on Maintenance of Website	Learning and Labor Productivity	No
Training on search engines / search techniques	Competitiveness and Access to New Markets (Suppliers, B2B), Access to Information and Knowledge, Administrative Efficiencies, Product/Service Quality	<u>Yes</u>

Based on AM's description he originally viewed technology as a tool to improve efficiencies and had previously only sent lists of required materials to a supplier (one-way communication). Therefore, the micro-enterprise's technical agency is assigned the code *Asocial* approach. By the end of the intervention, however, AM's technical agency included a *Social Acquainted* component, as he began to maintain interactive contact with a new network of materials vendors. He is thus given the code *Technical Agency [change]: Social Acquainted (Materials Vendors)*. Based on his use of technology, AM added non-technical affiliates, and thus receives the code *Non-Technical Affiliations [addition]: Materials Vendors*. These code additions and changes are synopsisized in the table below:

Table C1CC. Code Changes for PN Post-Intervention

Code Changes/Additions Post-Intervention:

Technical Agency [change]: Social Acquainted (Materials Vendors) from asocial
Non-Technical Affiliations [addition]: Materials Vendors

The original case study made no reference (at least in the synopsis tables) to the fact that deprivations can be partially addressed. The formatting of the table below helps indicate that giving PN a website makes it at least somewhat easier for members of the English speaking community to reach him.

Table C1DR. Deprivations Remaining for PN

Deprivations Remaining:

Poor English Skills

Non-technical Affiliations: Social Exclusion (from English-speaking community)

Poor Organization

Case 1 Analysis

It is first important to note, that as a result of the intervention, AM used technology much more than he did previously. It is also important to highlight the fact that PN achieved significant income growth and beneficial secondary effects as a result of AM's use of technology.

To understand the pattern of access and use that led to this significant growth outcome, it is helpful to make some generalizations about AM's resources before the intervention (economic, human and social) and his agency style before the intervention. The question is posed: What did the intervention allow AM to do that he could not do before? In other words, what capability was enabled by AM's use of technology that allowed AM to grow his business?

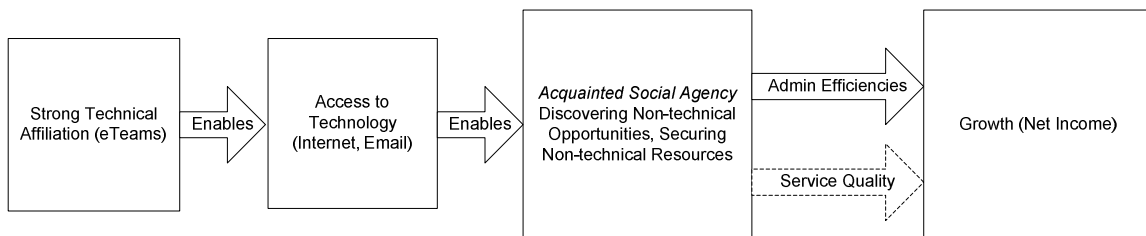
From an economic standpoint, prior to the intervention, AM's business was a success. AM had the resources to purchase technology, as needed. From a human standpoint, AM faced two challenges: a lack of knowledge about technology, and poor English literacy. AM's lack of knowledge about technology prevented him from deploying his economic resources to purchase modern computing equipment, and from using what hardware and software he had, for his benefit. From a social standpoint, AM lacked connections to suppliers.

AM was not passive, socially. He had expressed a strong interest in both discovering opportunities and securing resources. One of his stated purposes for working with eTeams was so that he could gain better control of his business through resource management. Although AM had made an effort at business networking, this had apparently not introduced him to raw materials vendors outside of the one provider he used.

The intervention gave AM a strong (albeit temporary) tie to a trusted technical affiliate (eTeams) that could help him leverage his economic resources to purchase decent hardware and software, and, through training, help him access the Internet and email. What the intervention enabled him to do, that he had not done before, was build weak ties to new suppliers. As Elfring et al. put it: "Weak ties are beneficial as they provide access to novel information and offer linkages to different regimes of the network" (Elfring & Hulsink, 2003). Use of technology permitted AM to discover these new networks and secure needed resources.

His securing of resources in turn offered his business substantial savings (net income growth). AM also employed technology to make stronger connections with his customers. By using the Internet for market research, he was able to offer trendier cakes for the parties he was baking for, that were connected to product developments in the Mexican market. The boxes in Figure 6, below, depict the researcher's interpretation of the abstract pattern of access and use that facilitated the growth outcome in the case.

Figure 6: Pattern of Technology Access and Use in Case 1



As the figure shows, forming a strong affiliation with eTeams enabled PN's access of the Internet and Email. His agency, or choice to use, these technologies, offered PN growth through improved administrative efficiencies and improved service quality. AM cited the improved administrative efficiencies he achieved as being directly related to the growth outcome. Therefore, the "Admin Efficiencies" arrow is solid. The relationship between AM's improved service quality and future growth was suggested by AM during the interview, but no direct evidence could be produced; the "Service Quality" arrow is dashed to reflect the uncertainty about the relationship.

Case Study 2: Furniture Store

The inviting barn-styled WW Country store is located in Papillion, Nebraska. Run by a husband and wife team, it is one of only two businesses in the Omaha area specializing in rustic faux antique furniture and accessories. The WW store features commercial items as well as custom products handcrafted by JT and her husband TT. JT is very proud of the custom work

that she and her husband perform for the store. They not only produce their own product 'lines,' but also take special orders from members of the community. The WW Country Store has been in operation since 1999.

JT and TT originally owned a custom fencing business together and treated 'crafts' as a hobby. Unfortunately, TT badly injured his back on the job and had to stop work. Faced with this crisis, the couple decided to turn their former hobby into a business. After learning about the 'antiquing' trade from an acquaintance in Kansas City, they converted the barn-like structure that had formerly housed their fence pickets into a full-fledged store. As JT tells it, many of their original clients were people whose yards they had fenced. The business began to turn a profit in its very first year, and JT and TT added a new 'wing' to the store (by refurbishing the building's garage) and hired three temporary employees. According to JT, their profits have increased steadily each year since.

Micro-enterprise Goals

JT and her husband are fairly content with the performance of their business. When asked about their goals, JT responded:

[We don't want to] expand into new markets or anything like that. You know, it would always be really great to expand your current customer list and find new customers and I think that that's the point we're at right now, you know my husband and I felt that the age we're at right now and you know I don't know how many more years we'll do it but I'd like to continue..But as far as expanding, and having two or three new locations or something like that, I'm not looking to do that right now. But the new customers are always good. And maintaining. You know, I definitely don't want to lose customers. We're comfortable where we're at.

This aligns well with JT's definition of success, which is:

Being happy at what you're doing and also being able to make a living at what you are doing .. kind of a quality of life type of thing.. If you are not happy with what you are doing I don't know, I guess you can still be successful but I feel like I have the best of both

worlds because we are successful and I do enjoy what I'm doing because we have flexibility in doing what we're doing

Stage of Growth : Based on the statements about the micro-enterprise's steady profits, the stage of growth assigned to this micro-enterprise is **Success**
Customer Dominance : Based on the WW Country store having a large number of customers, this micro-enterprise has **Low Customer Dominance**
Adapter/Innovator : Based on this micro-entrepreneur not wishing to use technology to transform business processes, she is characterized as an **Adapter**

In her initial screening interview, JT's technology goals followed closely from her overall goal of maintaining and expanding her customer base. JT expressed a desire to use the Internet for marketing. Having listed her business in the yellow pages, she believed that the next logical step would be to create a web presence.

JT also expressed a general goal of learning more about technology, so that she could understand how to exploit it to build her business. She hoped that work with the eTeams initiative would improve her knowledge of technology concepts, as she indicated that this was a major barrier to her adopting and using technology.

Deprivation : Due to this micro-entrepreneur expressing a poor grasp of technology concepts, she is assigned the deprivation **Knowledge Barriers and Staff Resistance**

Micro-enterprise Means

JT's net income comes from profits earned by the WW country store. As mentioned, JT and her husband TT both create and resell furniture and accessories. Their IT equipment consists of cash registers, a desktop computer (located at home), a digital camera (for product photographs), and two printers (one at the store, for the cash registers, and one at home). The computer has Microsoft Office, Quicken, and a software application called "Quick Payroll" installed. Their Internet connection is only available at home and is provided by Cox Communications.

IT Adoption : Due to its using standard technologies this micro-enterprise is characterized as having **Average IT Adoption**

As far as other equipment goes, the WW country store has a large physical location, including a carpenter-shop area, which contains various tools for the production and distressing of furniture. The store has phone service, running water, heating and cooling, electric service and cable Internet.

Goods

- Carpentry/distressing equipment (saws, paintbrushes, lathes, etc.)
- New furniture (to be distressed)
- Commercial furniture and products (to be resold)
- Desktop computer (Windows XP)
- Digital Camera

Services

- Heating, electricity, water, phone
- Cable Internet (Home only)
- Accounting (Outsourced)
- Advertising (outsourced initially, later through a collective)

Non-technical affiliations

JT and TT have are not affiliated with any community programs for small business assistance. When asked if there were any local or community groups that were good partners for small businesses, JT said:

No, I haven't seen anything like that

The WW Country Store does not have a lawyer. Accounting was outsourced. At the beginning of eTeams' contact with the WW country store, JT outsourced print advertising to a professional marketing firm.

Deprivation : Based on the micro-enterprise having no ties to community programs or groups, or to any other businesses, this micro-enterprise is assigned the deprivation **Non-Technical**

Affiliations: Social Exclusion

Technical Affiliations

JT and TT have never hired anyone for technical assistance. What assistance they have received has come from their accountant (setting up Quick and the Quick Payroll system), a friend, and from their sons. JT describes it this way:

Um, yeah, my kids, they will help, if I have major computer problems then I have another friend that is in the business that would, that helps me, but basically if it's how to get from one place to another, or how to set up something, I'll call one of my boys and they usually say well "Call the other one" [laughter] and I'm like "Ok guys, I get the picture." They're passing me off.

Deprivation : Based on the micro-enterprise not having the ability to get consistent technology support, it is assigned the deprivation Poor Organization

Based on the conversation, it appears that JT leverages her technical affiliates in an essentially reactive manner. Occasionally, JT will get unsolicited advice or help, but this seems not to engage her interest very much. An example comes from her description of her son's attempt to set up a Facebook page for her business:

My son set up a Facebook business page but he set it up through his account so I really don't know how to get to it, and I don't know whether I can get to it or not but it's there supposedly .. I don't know. Because I don't have a Facebook account... so.

Deprivation : Based on the micro-entrepreneur not being interested in engaging with technologies she is assigned the deprivation Lack of Utilitarian Value and Other Personal Incentives
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Affiliations : Based on the micro-entrepreneur only being able to use family members for technical support, and only using them in the event of a technical failure, the micro-enterprise is assigned the code Technical Affiliations: Strong ties (problem-solving only)

Business and Financial Environment

Asked about what she thought of the regulatory environment in Omaha, JT stated that it had never been an issue:

I think from my standpoint I don't really see any over or under regulation not that I've had any dealings or problems with it.

JT did not have loans, but holds a positive opinion of the local banking system:

We bank down at the local bank. They've definitely been easy to work with. Definitely.

JT did not have any certainty on the subject, but from a theoretical standpoint felt that it would probably be easier for a larger business to operate in Omaha:

Just because they have more capital, and more business, more people.. I mean.. it's been good, don't get me wrong, as a small business and stuff. I guess it's kind of a two sided coin .. the large companies have tons of overhead and I don't have all that overhead, but I would still say it's probably easier for a little bit larger company to succeed.

JT stated that the WW Country Store had only one major competitor in its niche in the Omaha area, although it would be relatively easy for customers to substitute other goods for the products provided by the store.

<p>Business Environment : Based on this characterization of few direct competitors but easy product substitution, the competition is characterized as Average Competition</p>

Technical Experience

JT and TT have not received individualized technical assistance. What computer skills they have, they have learned on their own. TT has very limited computer skills. In the initial screening interview, JT highlighted lack of knowledge as a key problem for her in deploying technology effectively. Asked whether technology had played a crucial role in her business' success, JT stated that it was "probably not critical," and that time had been a limiting factor in her adoption of technology.

IS Experience : Based on JT's description of not having taken any technology classes and only having a computer at home, she is classified as having **Low IS Experience**

Micro-enterprise Business Processes

Asked what kind of thinking was involved in their business decisions, JT indicated:

Mainly 'can we afford it.. is this going to sell?' That's the main thing. You go to market and you see a lot of products and stuff and you're like, yeah really like that but are my customers going to like it? I have to pay this much for it, so I have to double my price, include freight which is outrageous right now. And then can I sell it at that price? And it might be something that I have to walk away from because I know that I can't turn it in my shop at that price. My shop is more of mediocre priced items. I don't have a lot of high end you know but ... I do have customers that don't care what it costs and they'll buy it at any means but that's something I do have to kind of watch when I go... is it within our selling range?

She then described her routine of sorting through available commercial catalogs to get

ideas:

We pretty much get updates from the companies that I order from, either via email or via supplement catalogs that I get. And again there's different markets that you can go to throughout the year to see the new things. Right now we're starting to see a lot of the new Fall and a lot of the new Christmas, we're getting a lot of emails on that and a lot of new catalog supplements to start ordering for Christmas, um, and then you just kind of wait it out again too, and then based on how many do you have to order 25 of them or can you order 5 of them, that's another deciding factor on what we stock too ..If you don't sell the ones you get volume discounts on, you can't let them sit in your shop so you have to turn around and sell it for a little bit less and that's where our sales corner comes in [laughter] which is good but you know you don't want a lot of things in the sales corner

In terms of deciding what to order next, she suggested that she performed an

incremental assessment:

I guess we know we kind of take an overall look at what we have sold in the shop and what are we getting low on, do we want to reorder more of that particular item, do we want to change it up a little bit and order from a different company and have something different from that same line. Just that type of thing, and maybe every other month or every month

Business Functioning : JT seemed very organized. Based on her characterizations, it appeared that her business ran very smoothly. The use of technology in the day to day business was limited to accounting and payroll, but it seemed that this was all that was needed. The business is therefore classified as **Administratively Efficient**.

Business Environment : JT made ongoing efforts to research product lines to appeal to customers, but the business was not an information based one. Therefore, it is assigned the code of **Average Information Intensity**

Technology Plan

JT was unable to articulate a detailed plan for using technology outside of using it to market her business in some fashion. She seemed not to understand online marketing concepts. She did indicate that she regularly checked the web for deals from her suppliers. JT and her husband did not use IT for any purpose other than improving the efficiency of the business.

Technical Agency : JT did not have a good understanding of how technology concepts related to the marketing of her business. She is therefore given the code **No IT Plan**.

Technical Agency : Due to IT being exclusively used for administrative efficiencies in WW, the use of IT in the business is coded as **Cost Reduction**

Technical Agency : IT was being used in a way that was not social (did not involve interactions with people). Therefore JT's use of IT is coded as **Asocial (Productivity)**

Micro-enterprise Achieved Functionings

JT and her husband were skilled at running their business using some standard technologies. From a human standpoint, they had good control of their employees and costs; JT had apparently captured savings from using the Internet as a resource for product information and cost comparison. Although JT did not express great ambition for her business, she was committed to incrementally growing it over time. JT had a basic mastery of Windows, email, Internet searching, and Quicken. Socially speaking, the WW store's connections were to customers (via word of mouth) rather than to other businesses, or to the business community. Economically, JT and TT had achieved business success. The business' achieved functionings are summarized in the table below.

Table C2AF. WW Country Store's Achieved Functionings

<p><u>Achieved Functioning Coding Synopsis :</u> Stage of Growth : Success Adapter/Innovator : Adapter IT Adoption : Average IT Adoption IS Experience : Low IS Experience Business Functioning : Administratively Efficient</p>
<p><u>Agency Coding Synopsis :</u> Technical Agency : No IT Plan Technical Agency (Value Add/Cost Reduction) : Cost Reduction Technical Agency : Asocial (Productivity)</p>
<p><u>Environmental Conditions Coding Synopsis :</u> Customer Dominance : Low Customer Dominance Business Environment : Average Competition, Average Information Intensity Technical Affiliations : Strong ties (problem-solving only)</p>

Micro-enterprise Deprivations

JT suffered from deprivations that were human and social in nature. On a human level, JT lacked a good conceptual understanding of computers and software. Although she could perform basic functions in common software programs, she was unable to address problems herself when the need arose. The result of JT's lack of knowledge, as indicated by her initial screening interview, was that she feared technology. JT also indicated that she had little time or energy to deal with the challenges posed by technology. At a social level, JT lacked connections to the local business community, to technical exemplars, and to professional technical resources. The WW Country Store was not even affiliated with a lawyer.

Table C2D. WW Country Store's Deprivations

<p><u>Deprivation Coding Synopsis :</u> Knowledge Barriers and Staff Resistance Non-Technical Affiliations : Social Exclusion Poor Organization Lack of Utilitarian Value and Other Personal Incentives</p>
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IT Interventions (Role of the IT Therapist)

JT's primary technology-related goal was to expand her business' customer base through the construction of a website. JT's secondary goal was to improve her conceptual understanding of technology. The IT therapists in this case viewed JT's primary deprivation as human (a lack of knowledge about technology). They believed that some targeted training and assistance for JT would put JT on the path to being able to grow her business using IT, by giving her knowledge, confidence, and a platform from which to build. They hoped that such training would encourage JT to actively edit her website, once it was constructed. The table below describes the interventions performed, alongside the relationships that the researchers *perceived* as existing between a given intervention and the micro-entrepreneur's goals and deprivations.

Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and training)**

Table C2I. Intervention for WW Country Store

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Training on web concepts	Improved conceptual knowledge	Knowledge barriers
Creation of a basic website with a product gallery	Web presence, Improved marketing of business	Knowledge barriers, Social Exclusion
Training on website maintenance	Improved conceptual knowledge	Knowledge barriers
Training on search engine optimization using keywords	Improved marketing of business	Knowledge barriers, Social Exclusion
Installation of a hit tracking system for website	Improved marketing of business	Lack of utilitarian value

Capabilities Enabled by Intervention

JT was interviewed twice about the effects of the IT interventions. The first interview was conducted several months after the researchers completed the intervention. The second interview was conducted a couple of years later in May of 2011.

In the first evaluation interview, JT was asked if she would feel more competent completing a business task using IT, post-intervention. She said:

I think so, I may have to refer to my notes on some of it. If I am not doing it every day I kind of forget.. but I think I could. You did a good job of letting me do things, it was hands-on, which helped me remember what to do.

<p>Capability : Based on her description, it appears that due to the training on website concepts and maintenance JT gained Access to Information Knowledge and Expertise</p>

In both interviews, JT suggested that she had gotten new customers as a result of the website, specifically, due to certain product keywords producing search hits for customers looking for local outlets. Below are quotes from the first and second interviews:

(Evaluation 1) I had a lady in the other day that said she had found me on the web, she was looking for this brand of candle that I had advertised on the web that I carried, she came in because she searched the 1803 candle and it came up with my name, that was a good example of someone searching for something and finding what I do carry. That was just one person and I'm sure that there are other items that hopefully other things will come up and my name will come up too

(Evaluation 2) I think I have found new customers through the website I have set up I think so, yeah. I mean I still have a lot of people that come in [because of that] ... in fact, on Saturday we a lady come in, you know it wasn't Saturday it was yesterday, that came in and she had never been in before and ended up spending quite a bit of money and was very impressed and then other people will come in and say 'we were looking for these candles online and we found that you were our local distributor' for those particular candles, you know that type of thing, if they are looking for a particular brand that we carry then that takes them to us and I've had several different instances like that too

Having a web presence has enabled JT to increase the WW store's revenues by bringing in some new customers. Google Analytics indicated that the website got approximately 170 hits within the first couple of months after it was installed. From May 23 to June 22 of 2011, the website received 146 unique visitors. Most of the traffic in both cases was from search engines, and most of the queries that drove the traffic were related to specific product line names or keywords like "rustic" that had been introduced as part of the keyword optimization. Thus, it appears that JT plausibly did gain increased customers/revenue due to having a website.

Capability : Based on her description, it appears that through the creation of a basic website with a product gallery JT gained **Competiveness and Access to New Markets**

JT did not indicate that the IT assistance saved her any time, although she suggested that putting detailed product descriptions on the web had improved her business' service quality. In her first evaluation interview, JT indicated that she thought the website could save her on advertising (because it could serve as a place to list detailed specials). As evidenced from the second interview, JT has in fact been using the site to list specials.

Capability : Based on her description, it appears that due to the creation of a basic website with a product gallery JT improved her business' **Service Quality** in the sense that she could offer a dynamic product catalog with dynamic specials

The table below summarizes the capabilities enabled by the interventions.

Table C2CE. Capabilities Enabled by Intervention, Summary

Intervention	Capability Enabled	Growth Related?
Training on Website concepts and maintenance	Access to Information, Knowledge and Expertise	No
<u>Creation of a basic Website</u>	Competiveness and Access to New Markets	<u>Yes</u>
Creation of a basic Website	(improved) Service Quality	No Evidence

Deprivations Remaining After Intervention

Asked if she would have built a website without the assistance of eTeams, JT was non-committal, stating:

Possibly. But probably not. I mean, maybe I would have down the road but it wasn't ... it was something I wanted to do.. but it was a bit in the distance and you know I had the opportunity and it was there so yeah, it's kind of an iffy question, it had been in my mind but to say 'yes I would have' I don't know for sure that I would have.

JT received two kinds of training: training on web concepts and website maintenance and training on website keyword optimization. As quoted above, JT expressed some doubts about her ability to remember what she had learned, unless she were applying it every day. By the time of the second interview, JT only remembered the basics about how to maintain her website. She said:

I use it pretty occasionally, I keep it pretty static. Again, it's the time factor, you know, I would really like to update pictures again, but it's something you know that I don't do all the time so I have to get my notes out and look back at those... I feel like when I did it I knew exactly what was going on and then they were fine for a while and then time to update them .. I felt like I was starting over, you know, kind of overwhelmed, and then, you know, I didn't have enough time today so that's kind of the point I'm at.

When the researcher logged in with JT, it became evident that the hit counter on her site had broken (it was displaying an error message); JT had not noticed that this was the case. The gallery page on the site was somewhat poorly maintained, with a number of redundant headings, although the specials page and text regarding product lines had been updated recently.

<p>Deprivation [addition]: JT's unwillingness to edit her website was evidence of a Lack of Top Management Engagement</p>

JT repeatedly expressed intimidation about technology in the final evaluation interview, emphasizing that she was "not a technology person" and did not have technology knowledge.

She did not recall her training in relation to search engine optimization or web concepts. Asked if she had made any technology decisions since eTeams worked with her, JT stated:

No we have not done anything. Our computer was probably updated not too far before we started and no we have not really updated anything.

Table C2DR. Deprivations Remaining for WW Country Store

<p><u>Deprivations Remaining :</u></p> <p>Based on her description of being intimidated, it appears that JT still faced Knowledge Barriers and Staff Resistance</p> <p>JT notably did not get help maintaining her website from either of her sons, indicating that the WW Country store still suffered from Poor Organization</p> <p>JT did see some value in updating her website to list product specials, but she apparently did not see enough value in updating other parts of the website regularly. This indicates that she still suffered partially from <i>Lack of Utilitarian Value and Other Personal Incentives</i></p> <p>The intervention specifically did not offer JT any ability to address her business' Social Exclusion</p> <p>[addition] JT's unwillingness to edit her website was evidence of a Lack of Top Management Engagement.</p>
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As stated previously, JT suffered from human and social deprivations in relation to technology. On a human level, although JT made some apparent progress in improving her conceptual understanding of computers and software during and soon after the intervention, she later chose not to use what she had learned on a regular basis. As a result, she forgot much of her training and did not advance in terms of her ability to solve personal technology problems. Interestingly, JT expressed satisfaction with her business' level of technological engagement in both interviews; it is possible that she had relatively modest ambitions to begin with, and that her low level of engagement post-intervention reflected her sense that she had already accomplished what she needed. Unfortunately, JT is still afraid of technology, hesitant to make technology decisions, and fairly passive with respect to technologies at her disposal,

such as her website. On a social level, JT remained (after the first evaluation) disconnected from the local business community, technological exemplars, and professional technical resources.

Post-Intervention Patterns of Access and Use

Sometime after the intervention, she indicated in her second evaluation interview, JT joined a small business group called the "Downtown Merchants." Where previously the WW store had outsourced advertising to a consultant, now JT and other stores focused on creating a collective email list and pooling resources for paper mailing campaigns. JT described it thus:

We have what we call "Downtown Merchants" and there's like, well they added another one, so there's like five of us that advertise together and we do like a Spring Open House, a Fall Open House, and a Christmas Open house. And then we kind of band our advertising together and we have a printed flyer that we send out and it's just the downtown merchants and you know we each offer specials for that particular weekend but yet we advertise together and it kind of keeps everyone's costs down a little bit we have a mass emailing list [through which] all of our customer lists is combined..

I think it not only draws your customers but sometimes it draws, you know there is a little boutique in town that is like a clothing boutique .. well.. her customers aren't basically the same as my customers, since we're too different things so .. but yet you know when they come downtown to go to her shop, they usually come to my shop too and vice versa, you know, so we kind of help each other, and there's a little jewelry store that kind of complements the other one and a home decorating store.. that I just think we feed off of each other that way

You know, a group of ladies get together for the day .. they don't just want to go to one place and go home, they are going to want several places to go to so it's kind of an opportunity to do that and then they go to lunch and go to the next shop and .. so we've found that to be pretty productive.

Arguably, JT recognized and addressed her social exclusion by joining this group and working with it for more than a year (by the time of the latest evaluation interview). There seemed to be some benefit for JT in building strong ties with the other small businesses. Aside from cost reduction (JT no longer outsourced advertising), this strategy of partnering for electronic distribution of information that linked to dynamically updated specials also appeared to add value by broadening the appeal of the marketing campaign. Each business was socially

acquainted with some customers (a subset of the email list) and socially unacquainted with others. The changes in the situation are reflected in the table below:

Table C2CCA. Code Changes Post Intervention for WW Country Store

<p>Code Changes/Additions Post-Intervention: Technical Agency [change] : Based on JT's description, she leveraged the intervention to change the WW store's approach to a combination of Social Unacquainted and Social Acquainted from <i>Asocial</i> Technical/Non-technical Affiliations [addition]: As stated, JT began using her marketing partners as pseudo technical affiliates via information sharing, and as non-technical affiliates via cross-promotion. Thus the code Strong ties (Marketing partners) is added</p>

Case 2 Analysis

It is first important to note that JT displayed two separate patterns of access and use, one related directly to the intervention, and one that occurred separately post-intervention. The apparent outcomes of these patterns are evaluated separately.

The outcome of the intervention (training on web concepts, creation of a website) was that JT's business experienced some growth as a result of increased store traffic. To understand this pattern, it is helpful to make some generalizations about JT's resources before the intervention (economic, human, and social) and her agency style before the intervention. What capability was enabled by the creation of the website that facilitated the growth of JT's business?

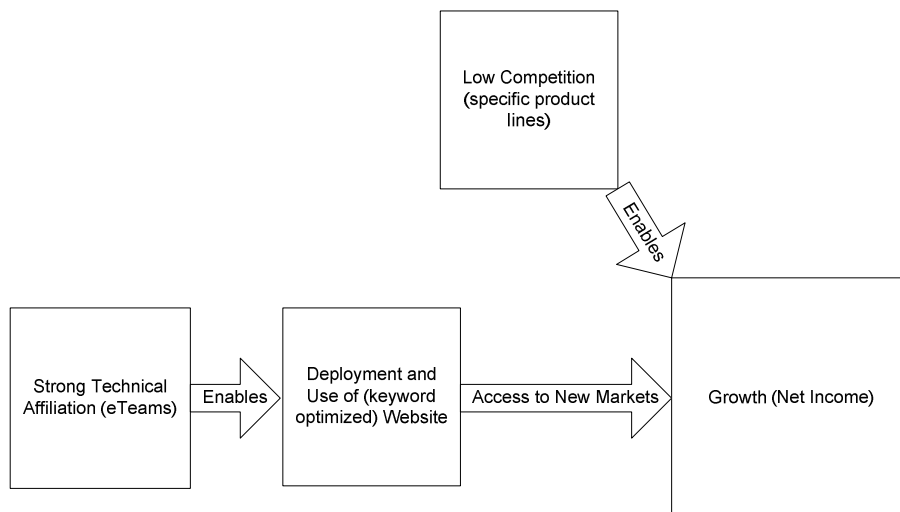
From an economic standpoint, prior to the intervention, JT's business was a success. She had the resources to purchase all technologies that she felt were needed, and she had done so. From a human standpoint, JT faced major challenges. She had a poor understanding of technology concepts and the value of technology to her business, outside of its being able to facilitate simple administrative efficiencies (as evidenced by the codes *No IT Plan, Cost Reduction approach, Asocial approach, Lack of Utilitarian Value*). From a social standpoint, JT

did not receive consistent technical support and was not partnered with any businesses that might provide assistance or ideas on this front.

JT exhibited remarkably passive technology-related and non-technical social agency prior to and during the intervention. She had no strong or weak technical affiliations and she did not indicate any interest in finding any. She was not part of any business networking groups, and was not aware of any community resources that might be of assistance. Technically speaking, she had not sought out any contractors or technical consultants, but instead relied entirely on her sons. When her son created a Facebook page for the business, she did not even show any interest in viewing it.

As JT did not use the technology introduced during the intervention (the website) much, most of the resulting income growth is attributed to externalities, rather than her agency. In this regard, an analysis of the web logs is revealing. Although JT faced average competition in the general furniture market, she was the only provider in Omaha of several major specific product lines (e.g. chairs, candles). Most customers found JT's site while searching for these lines. The figure below depicts this pattern.

Figure 7: Pattern of Technology Access in Case 2 (Intervention)



As indicated in Figure 7, JT's partnering with a strong technical affiliate (eTeams) enabled JT to deploy a website. The simple existence of this website, coupled with a lack of competition within JT's niche, allowed JT to access new markets using the site.

JT also exhibited a second pattern of technology access and use, post-intervention. According to JT, she used technology more as part of this pattern, and experienced substantial income growth as a result. The scenario, which has been described already, essentially involved JT's forming strong technical and non-technical affiliations with nearby businesses, and changing her technical agency style to social from asocial. The strategy was facilitated by JT's having a website, as she could offer "web exclusive" details to customers on the email list. Figure 8 depicts this pattern.

Figure 8: Pattern of Technology Access and Use in Case 2 (Post-Intervention)

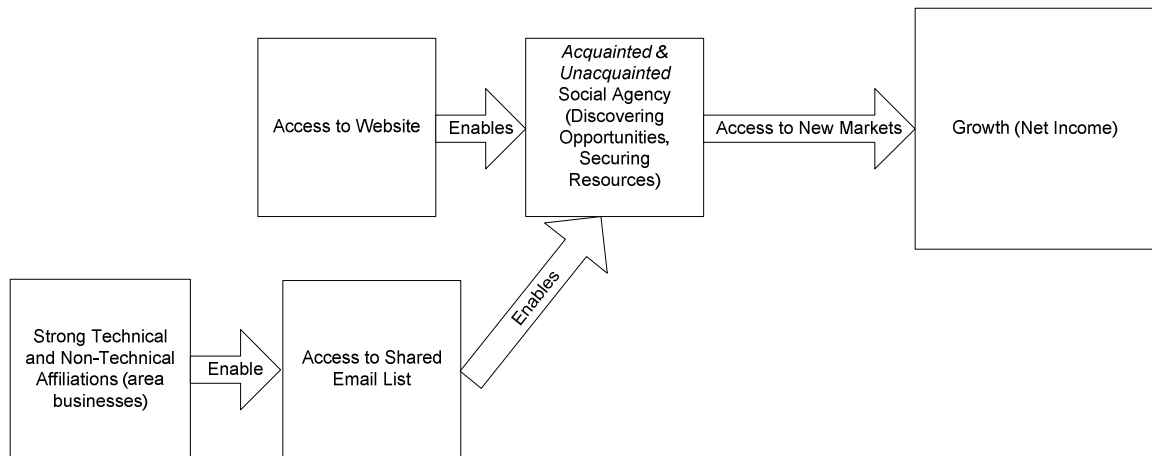


Figure 8 illustrates how JT's affiliations enabled a technical achievement (Access to Shared Email List), that she leveraged synergistically with her website (through the contribution of linking blurbs in the newsletter) to address both existing and potential customers. The result of JT's technology-enabled social agency was income growth.

Case Study 3: Marketing

There is no storefront for AYS, a business owned by sole proprietor EN that greets newcomers to the Nebraska area with a gift package and flyers from local businesses (clients, who pay AYS for distribution). Rather, AYS operates out of EN's home office. In her initial interview, EN described using a cell phone, spreadsheets, and a web database to coordinate seven temporary employees in canvassing neighborhoods. Apparently, this effort was exhausting to the greeters, due to the vast spaces that had to be covered in pursuit of a relatively small number of newcomers. It was also exhausting to EN, who divided her time between burdensome administrative tasks, and managing her relationships with her employees and her relationships with client businesses.

Deprivation : Based on EN's characterization of hurdles involved in hitting greeting quotas, the micro-enterprise business environment is assigned the code **Low Population Density**

EN is a Native American who grew up in Massachusetts. She worked as an administrator and eventually became employed as a contractor for a Native American tribe. Fearing that her contract might be canceled due to the tribe being in a difficult financial situation, she began the 'Welcome' business as a sideline. In fact, the tribe canceled her contract prematurely, and she undertook the welcome business full time. EN's company, AYS, has been in business for twenty years. AYS has been consistently profitable. EN works very long hours in order to drive the volume necessary to maintain her advertisers' interest and she has cultivated relationships with a wide variety of businesses. EN successfully transitioned AYS from being a completely paper-based business to one which was almost fully electronic, during the early 1990s.

Stage of Growth : Based on this micro-enterprise's steady profits, the stage of growth assigned to this micro-enterprise is **Success**

Customer Dominance : Based on EN's description of having a large client base, this micro-enterprise has **Low Customer Dominance**

Adapter/Innovator : Based on this micro-entrepreneur's description of having used technology to transform her business processes, this micro-enterprise is characterized as an **Innovator**

Micro-enterprise Goals

EN's primary goal was to expand her business via improved management of her employees and through the cultivation of strategic relationships with other businesses. She also had specific technology goals with respect to being able to track her employees better, and being able to manage her lists of 'newcomers' to neighborhoods more easily.

EN's definition of success had to do with personal autonomy, she joked:

Oh yeah. Yeah. I'm probably totally unemployable -- to say you need to show up at such-and-such a time.. people are sacrificing their time and being chained to a desk.. You know I'm very self-reliant uh, almost to a fault sometimes.. I don't really want to be dependent on somebody. The times in my life that I have, even from being a kid, the person disappointed me. Um, okay I'm not gonna do that anymore. So where this can be a fault is that you don't play with others. I mean it's just like okay, this is it.

EN stated during one of the early post needs-assessment meetings that she hoped to automate her business to the extent that it would be manageable even as she aged into her eighties. She stated that she wished to increase her profits as much as possible, and have as few employees as possible.

Micro-enterprise Means

EN's net income comes from subscription fees paid to her by local business clients. EN guarantees these local businesses that she will reach a certain number of 'newcomers' to Omaha, and must document that she has in order to receive fees.

EN's IT equipment consisted, at the time of her initial screening, of a laptop and two desktops, a scanner, three printers, and a color copy machine. Her phone was a Pocket PC. In terms of software, she uses MS Office products (particularly Excel), Quickbooks, and the layout

program InDesign. She has four websites designed by contractors, which are on PHP/MySQL platforms. Of the four sites, three are for her business and one is for personal use. EN receives and manipulates domain-specific marketing files on a regular basis. Part of her site infrastructure is a custom online contact database wherein she or her temporary employees can enter information from the newcomer lists that she subscribes to.

IT Adoption : Based on the fact that EN not only used domain specific applications but also had had custom web-based software built for her business, this micro-enterprise is characterized as having **Extensive IT Adoption**

As far as services, EN has access to phone service, running water, heating and cooling, and electricity. She subscribes to customer list providers. She outsources legal, accounting and other business functions. Her husband is a videographer; she can ask him to produce additional promotional materials as needed.

Goods

- Laptop
- Two desktops
- Scanner
- Three Printers
- Color Copier

Services

- Heating, electricity, water, phone
- Cable Internet (Home)
- Accounting (Outsourced)
- Legal (Outsourced)
- Demographic List Providers

Non-technical Affiliations

EN claims to do extensive networking. She does not commit to any particular 'business group,' preferring instead to try a different one each week, and exchange cards with those

present. She said that she will schedule meetings with the most promising leads from each business group.

Affiliations : Based on EN's description of her approach, EN's non-technical affiliations may be assigned the code **Non-technical Affiliations : Weak ties (many)**
Social Agency : Similarly, EN's approach appears to correspond to **Discovering Opportunities (Non-technical Affiliates)**

As far as community or governmental services, EN had only worked with NBDC's PTAC office to sign up to become eligible to receive government contracts. She expressed a good deal of skepticism about the process:

I did a whole exercise of um, getting registered with the government. Um, and we used marketing and advertising. And of course what I do is very specific. So and so I would get requests from England to do some advertising thing..It wasn't relevant at all.

And my husband who has a video business, we do the same thing with him. And he responded to a bid to do an air show like they have here at SAC -- I don't know whether it was Texas or someplace like that. And we followed all the details and everything. And then it was granted to somebody else. And I questioned it. And they said they don't know...we didn't get an answer...So we never did another one. It took a lot of work to get nowhere. And it wasn't like someone could say okay you applied for this. You didn't get it. Let's see why. That would've been very instructional. But there's no incentive on the part of these government workers to get you to do these grants or be successful.

Deprivation : Based on these statements about the micro-enterprise's lack of connectedness to community partner organization, this micro-enterprise is assigned the code **Non-Technical Affiliations: Social Exclusion (Community Partners)**

Technical Affiliations

EN had no technical affiliates to draw on other than her contractors. She expressed general skepticism and annoyance with contractors:

Most small business owners hate working with IT people... They feel like they're gonna be locked into a particular solution.

Asked what inspired her feelings, EN indicated that on the first website she had made, she had employed the services of a large company, but had been abandoned. She stated:

The person that developed it disappeared off the face of the earth, which is what a lot of small businesses find [when] they're working with somebody. And this was a [big] company... this wasn't just Joe that works out of his -- the back of his car. And they just disappeared. Gone.

As a result of conversations with one of her custom app developers, EN decided to only use 'Open Source' components for any web applications that she had developed. She said:

So that's kind of where I'm at [open source adoption stance] because of how difficult it is to find a good technical person that's gonna stay with it, that's not gonna make something in a secret code that, you know, cannot be cracked.

Based on the conversation, it appeared that EN actively managed and engaged with her contractors to ensure they produced work within her specifications. She was also aggressive about finding replacement contractors and new contractors, as needed. As of the most recent interview, EN had maintained relationships with two contractors since 2007, and had severed ties with two others.

Affiliations : Based on EN's description of her relationships with her technical affiliates, the micro-enterprise is assigned the code **Technical Affiliations : Strong ties (ongoing support, development)** and the code **Technical-affiliations : Weak ties (advice)**
Social Agency : Similarly, EN's approach, involving the use of affiliates as informants and system builders, seems to correspond to both **Discovering Opportunities (Technical Affiliates)** and **Securing Resources (Technical Affiliates)**
Technical Agency (Consultant-vendor/Vendor) : EN's use of different vendors to offer advice on her systems versus to build her systems suggests that she uses a **Consultant-vendor** approach
Technical Agency (Value Added/ Cost Reduction): EN frequently stated during the course of the intervention that she felt that web self-service portals, such as the one she had had developed for her business, offered great value for the customer. Her approach is thus coded as **Value Added**

Asked about how she had found her initial group of web contractors, EN indicated that she had been referred to them by other welcome businesses at a welcome business convention.

Business and Financial Environment

EN felt that small businesses in Omaha were over-taxed, but not overregulated:

Um, regulated? I don't think so. There's not a registration that you have to do with a small business in Nebraska. Um, you know there are certain requirements and that's no big deal.

She did not have an opinion about whether it would be easier to operate a small or large business in Omaha. She had not taken out loans for her business, but had formed a negative impression of the banking and financial community:

Money is tight. And bankers are really not [user] friendly [or supportive] to the small business[es] that we're talking about.

EN stated that there was only one other 'Welcome' business in the area, but that the business was not a serious competitor. She expressed that the only serious threat to her customer base was the recession, because her client businesses were cutting back on *all* forms of advertising.

Business Environment : Based on EN's statements about there being no direct competitors for her business and no easily substitutable advertising services, the competition is characterized as **Low Competition**
Business Environment : Due to EN's business being almost entirely related to the provision of information to customers, her micro-enterprise's business environment is assigned the code **High Information Intensity**

Technical Experience

EN characterized technology as "more of a help than a hindrance." Respecting her own knowledge, she said:

It's only been a hindrance because of my lack of computer knowledge. Uh, that's where it stopped me. Because when I ask of those questions, I can -- I can bend the technology people to my will to get the answer. But [even then] if they're way smarter than I am in a certain area and I'm not actually getting the questions we don't have it [an understanding].

Although EN characterized her technical skills as poor, she had in fact mastered a variety of moderately complex technical tasks and programs. Overall, EN was fairly technically competent, more-so than the average micro-entrepreneur, and she made great use of her

technical affiliates to compensate for her own shortcomings. She did have gaps in her knowledge about emerging technologies; she wanted the intervention to address these.

Deprivation : Based on EN's statements about not knowing much about emerging technologies, her micro-enterprise is assigned the code **Knowledge Barriers and Staff Resistance (Emerging Technologies)**

EN had attended a few technical classes, and used computers for both casual and work-related purposes.

IS Experience : Based on EN's statements her level of experience is coded as **Moderate IS Experience**

Micro-enterprise Business Processes

Asked about her process for making business decisions, EN said:

Well I look at the need. Then when the resources are available. And um, then I proceed. I mean if I can -- a lot of times if I need something I see if I can't do business with that business so we can in a sense trade that [barter services].

Social Agency : Based on her statement about bartering services with business contacts, this micro-enterprise is assigned an additional code of **Securing Resources (Non-technical Affiliates)**

EN had regular processes in place for contacting clients, managing her employees, and networking. Less well defined were her processes surrounding the treatment of data. EN engaged in two separate kinds of customer interactions. Her interaction with the 'newcomers' that she had her employees greet involved no use of technology at all. Her interaction with her client businesses involved the use of a website to advertise the existence of her business, and the use of emailed reports and a web portal to facilitate client access to reporting.

Technical Agency : Based on EN's use of email messages to interact with her clients, her micro-enterprise is given the code **Social Acquainted (Clients, Email)**. Based on EN's having created a portal and an informational website for her clients neither of which entailed human interaction, her micro-enterprise is assigned the code **Asocial (Clients, Informational Website & Portal)**

Technology Plan

EN stated that she sought technologies that would decrease the need for her to employ people. She indicated that she did research on sites such as CNET prior to purchasing hardware or software. She asked her contractors for advice, as well.

Technical Agency : Based on EN's ability to cogently describe her technology strategy in relation to her business processes, EN can be characterized as having an **IT Plan**

Micro-enterprise Achieved Functionings

EN was moderately skilled at running her business using technology. From a human standpoint, EN possessed demonstrable ambition, discipline, and time management skill. From an IT standpoint, EN had marshaled her resources effectively and was an effective user of most common productivity tools as well as a few specialist tools. EN was committed to growing her business' revenues, while at the same time reducing its headcount. The table below depicts AYS' achieved functionings.

Table C3AF. AYS Achieved Functionings

Achieved Functioning Coding Synopsis :

Stage of Growth : Success
Adapter/Innovator : Innovator
IT Adoption : Extensive IT Adoption
IS Experience : Moderate IS Experience

Agency Coding Synopsis :

Technical Agency : IT Plan
Technical Agency (Consultant-Vendor/Vendor) : Consultant-Vendor
Technical Agency (Value Added/Cost Reduction): Value Added
Technical Agency : Asocial (Clients, Informational Website & Portal)
Social Agency : Discovering Opportunities (Technical Affiliates), Securing Resources (Technical Affiliates), Discovering Opportunities (Non-technical Affiliates), Securing Resources (Non-technical Affiliates)

Environmental Conditions Coding Synopsis :

Customer Dominance : Low Customer Dominance
Business Environment : Low Competition, High Information Intensity
Technical Affiliations : Strong ties (ongoing support, development), Weak ties (advice)

Non-technical Affiliations : Weak ties (many)
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Micro-enterprise Deprivations

EN faced challenges that were social and human in nature. Socially speaking, to retain customers, EN needed to maintain an efficient, friendly, welcome book distribution operation that could canvas neighborhoods across the Omaha area. To address this challenge, EN employed a revolving cast of temporary employees -- in-person and phone greeters, who were paid on a per-greeting basis. Due to the nature of the task, which involves 'customer rejection' of solicitations, EN has a high employee 'churn' rate. According to EN, this fact greatly curtailed her business' expansion, as she had to constantly train new employees, and then evaluate their greeting performance. Effective friendly greeters, are, according to EN, hard to find, incentivize, and keep.

Deprivation : Based on EN's characterization, a new short deprivation code is developed and applied, this being Staff turnover
--

On the human front, assigning, tracking and verifying greetings became a laborious manual process for EN, as did lead acquisition, which required EN to read newspaper entries on property sales, scan spreadsheets from magazines, call people 'in-the-know,' and use potential customer lists issued via weekly updated spreadsheets from several commercial providers. EN typed all this information into a single spreadsheet, typed the spreadsheet into an online system, and then assigned greeters singly via the online system.

Deprivation : Based on EN's not being able to use an electronic process to optimize this portion of her day-to-day work, the micro-enterprise is assigned the code Administratively Inefficient (Manual Data Entry)

Although EN chose technologies that were basically appropriate for her needs, she was unable to make get them customized to work for her very effectively. For instance, for EN to maintain her spreadsheet of leads took a great deal of time, because the spreadsheet lacked the intelligence to discard or merge 'duplicate' entries, consolidate entries from multiple sources, and 'vet' line items for compliance with certain basic standards (e.g. presence of a valid phone number). In interviews, EN indicated that spreadsheet maintenance was eating into her evenings and weekends. Similarly, EN's website lacked the ability to import the spreadsheets; these had to be manually entered after having been vetted in Excel.

Overall, overhead associated with her IT artifacts deprived EN of time primarily, and as a secondary consequence, reduced her ability to effectively manage her employees or expand her customer base. Ironically, EN claimed that she had experienced less stress under her earlier paper system, which also apparently produced superior results. The fact that her data providers switched to electronic only formats, however, forced her to abandon the paper process.

Deprivation : Based on EN having to use technology in a way that offered comparatively little value for the work expended the micro-enterprise is given the code **Unfavorable Inclusion (Data Reconciliation Procedures)**

EN's stated rationale for using these particular IT artifacts was necessity; she needed to track greeters and customers in order to make money, and she had no other way of accomplishing that than via these particular artifacts. AYS' deprivations are summarized in the table below.

Table C3DC. AYS Deprivations

Deprivation Coding Synopsis:
Knowledge barriers and Staff Resistance (Emerging Technologies)
Non-Technical Affiliations: Social Exclusion (Community Partners)
Administratively Inefficient (Manual Data Entry)
Unfavorable Inclusion (Data Reconciliation Procedures)

Staff turnover Low Population Density
--

IT Interventions (Role of the IT Therapist)

Based on initial conversations with EN, it was determined that EN's goal of managing her business better and her primary deprivation of lack of time could be handled by developing a custom information management system for her. Since EN was very concerned with building her customer base and business network, it was determined that training her on blogging would be an appropriate technical intervention.

As part of the custom software development process, sessions were conducted with EN over the course of several months. The early sessions involved specifying a desktop application that would successfully integrate information for EN (import all sources while dropping duplicate entries, intelligently merging entries, etc.). Based on the specification from the early sessions, the researcher constructed a Java desktop application to read 'newcomer' text files from county sources and Excel files from commercial providers. Via Apache text recognition libraries (for matching mis-spelled and sound-alike words) and some simple custom algorithms, the application was given the ability to intelligently merge entries and suggest duplicates where detected. The final output of the application was an Excel file with column order driven by the field order of the online data entry system (due to liability and data integrity issues, the desktop application did not directly integrate with the online data entry system).

In parallel with the development work, the researcher and the other IT therapist introduced EN to the concept of blogging and its uses as a marketing and social networking tool. EN signed up for a blog account, and began writing about her general issues, as well as her own

business. She also began following other blogs. The table below summarizes the interventions for AYS.

Table C3I. Interventions for AYS

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Development of custom software for importing and integrating newcomer information	Improved ability to manage business	Administratively Inefficient (Manual Data Entry) Unfavorable Inclusion (Data Reconciliation Procedures)
Training on blogging	Improved marketing of business	Knowledge barriers and Staff Resistance (Emerging Technologies)

Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and training)**

Capabilities Enabled by Intervention

EN was interviewed twice about the effects of the IT interventions. The first interview was conducted about four months after the researchers completed the interventions. The second interview was conducted May of 2011.

During the first interview, EN indicated that the custom tool had saved her time (about two hours a week) and improved her service quality and morale as a result.

Capabilities : Based on this statement, it appears that due to the creation of the custom software tool AYS improved its **Administrative Efficiencies** and **Service Quality** and EN gained **Morale**

EN also indicated that training on blogging and social networking technology resulted in her creating a blog and actively promoting it among her customers. EN believed that the blog had raised AYS' profile on Google searches, and indicated that it was deepening and broadening

her social network. She also indicated that the blog was improving her branding and her awareness of her competitors.

Capabilities : Based on these statements, it appears that due to the training on blogging EN gained **Competitiveness and Access to New Markets** and **Access to Information, Knowledge and Expertise**

Finally, EN claimed that the intervention had encouraged her to explore the instrumental possibilities of technology further. She said that she was "excited about using IT, and confident that it will further her business objective." Shortly after the intervention, she purchased a NetBook, and selected a new web designer using some tips that the researcher had provided her.

Capability : Based on these statements, it appears that due to the training on blogging EN received and the experience during the intervention, EN increased her **Learning and Labor Productivity**

EN gave a "time is money" explanation about how the creation of the custom software tool had increased her income. EN could not offer any specific examples about how the blogging had increased her net income, acquisition of customers, or hiring. Thus, according to the principle of suspicion, none of the blogging-related outcomes were accepted as being growth related. The table below summarizes the capabilities enabled by the interventions.

Table C3PEC. Capabilities Enabled by Intervention, Summary

Intervention	Capabilities Enabled	Growth Related
Creation of custom software tool	Administrative Efficiencies, Service Quality	<u>Yes</u>
Creation of custom software tool	(Improved) Morale	No
Training on Blogging	Competitiveness and Access to New Markets, Access to Information, Knowledge and Expertise, Learning and Labor	No

	Productivity	
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Deprivations Remaining After Intervention

The interventions did not solve EN's issues with Staff turnover. Similarly, some manual data entry was required of her as not all data could be integrated by the application. The intervention did not strengthen EN's affiliations with any community partners. The table below indicates AYS' deprivations remaining.

Table C3DR. Deprivations Remaining for AYS

<p>Deprivations Remaining : Non-Technical Affiliations: Social Exclusion (Community Partners) <i>Administratively Inefficient (Manual Data Entry) [mostly solved]</i> Staff turnover Low Population Density</p>

Post-Intervention Patterns of Access and Use

By the time of the second evaluation interview, EN appeared to have forgotten that any training on blogging had occurred as part of the intervention, although she was still actively maintaining a blog. She had also completely changed her business model, from one emphasizing door to door service, to a 'low-touch' electronic newsletter distribution initiated by phone calls. EN could tailor a newsletter's content based on a given newcomer's interest, using a tool that one of her technical affiliates had built for her. Under the new business model, EN was the only employee. She explained her decision thus:

It would be great if you could get into people's homes and businesses. But you know when we do two hundred contacts, we have to have a legion of people to do that. And then there's the care and feeding of the greeters. I used to tip them, give them extra so that they would be happy. That day is long past. I bet you that was in -- I bet you that was being extinguished early 2000-ish. And then I couldn't find reliable workers. And then the newcomers [were] not really wanting that level of contact.

Technical Agency : Based on EN's use of an email newsletter to advertise to newcomers with whom she had made phone contact, her micro-enterprise is given the code **Social Acquainted [addition]: Newcomers (Email Newsletter)**

With EN's adoption of a new business model, she began using different data providers, to which the custom software could not adapt. EN stopped using the tool after the switch and never used it again. Whatever the capabilities enabled by the tool, they were comparatively short lived.

Due to EN having a much broader social and technical network than most of the other micro-entrepreneurs eTeams worked with, it is difficult to determine the degree to which her eTeams experience influenced her decision to switch models. The move did align with EN's goal of reducing her staff while increasing her profits, that she had mentioned during the initial screening. EN adopted a series of new IT artifacts as part of her business process change, including an iPad, an iPhone, and a multi-function printer.

According to EN, although the economic environment is challenging, her business has been successful. Operating without employees, she has significantly less overhead and more free time, and experiences less stress. Her problem with lists, however, has re-surfaced. This time around, the issue is not that she has to merge multiple lists (she only uses two, covering different areas, now), but that the lists are becoming inaccurate due to changes in consumer lifestyles. For example, one of the primary indicators that someone had moved into a new home apparently used to be that the telephone service was turned on. With the advent of widespread cellular phone service, many newcomers apparently no longer even have landlines.

EN mentioned that she had used a custom built website to advertise a trade show that she put together in partnership with other businesses. She indicated that the trade show had

been very successful as a result of her marketing it to her email list with a link to the website. EN told the researcher that she had an idea about the trade show:

Okay, there are businesses that still want to showcase their stuff. But rather than truck all their stuff out to a location and who knows who is gonna come, then let's do it virtually on the internet. So on -----.com you would click on your -- your element. Your table if you will. And it would be that you have this technology thing that people can buy these things. And then it would go to your website. So we don't have to do any e-commerce stuff there. But we're a portal.. And we would advertise that pretty heavily. Well one I have a captive audience with over two hundred people a month with [name of trade show]. So that's kind of where I'm headed with that.

Always the innovator, she planned to digitize the event. The code changes, post-intervention, in EN's patterns of access and use of technology are indicated below.

Code Changes/Additions Post-Intervention:

Social Acquainted [addition]: Newcomers (Email Newsletter)

Non-technical Affiliations [addition]: As stated, EN began running tradeshow that solidified relationships with and among her clients. This is coded as **Strong ties (Clients)**.

Case Study 3 Analysis

It is first important to note that EN displayed three separate patterns of access and use: one related directly to the intervention, and two that occurred separately post-intervention. The apparent outcomes of these patterns are evaluated separately.

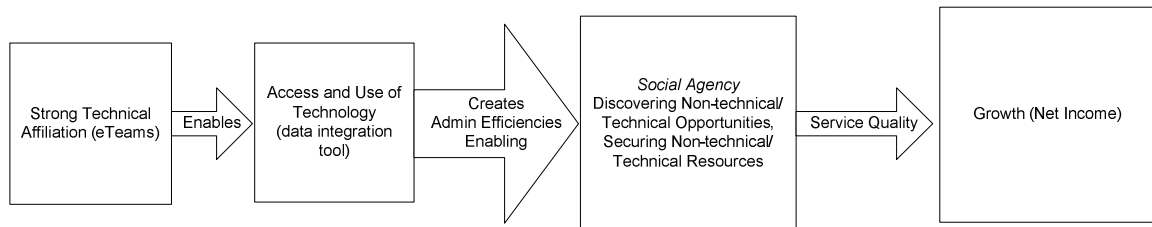
The outcome of the intervention (development of a custom software tool for data integration), was a substantial time savings that, according to EN, equated to an increase in net income. To understand this pattern of access and use, that led to a growth outcome, it is helpful to make some generalizations about EN's resources before the intervention (economic, human, and social), and her agency style before the intervention. The question is posed: What did the intervention allow EN to do that she could not do before? In other words, what capability was enabled by AYS' use of technology that allowed EN to grow her business?

From an economic standpoint, prior to the intervention, EN's business was a success. EN had the resources to purchase technology and technology consulting/development services as needed, and she had done so. From a human standpoint, EN was an innovator with a moderate amount of IS experience. She had the skills and knowledge to direct others in the execution of technical tasks. She faced a challenge in the sense that a task that she did not know how to contract out (data integration) was extremely burdensome, and was overshadowing her relationships with her employees and impinging on the time she needed to maintain her large network of clients.

EN exhibited substantial agency with respect to her technical affiliates and her clients. She used her technical affiliates proactively to discover technology trends (like the emergence of open source software). She was constantly networking with her non-technical affiliates, not only to locate potential clients, but also to locate partners with whom she might barter. Most of EN's communications with her contacts were not electronic, however. Rather, she physically met people and had phone conversations.

The intervention gave EN a strong (albeit temporary) tie to a trusted technical affiliate (eTeams) that could address an administrative problem that EN's other contractors could not. The eTeams assistance produced a product that improved EN's administrative efficiencies. What the intervention enabled EN to do, that she had not been able to do before, was spend more time exercising her social agency with her employees and clients (improving customer service). In a very real sense, in an information intensive business like marketing, not spending time on managing employees and networking was akin to losing money. The boxes in Figure 9, below, depict the researcher's interpretation of the abstract pattern of access and use that facilitated the growth outcomes in this case.

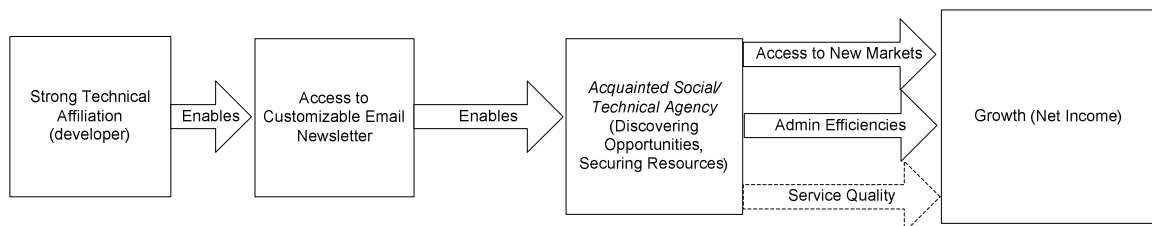
Figure 9: Pattern of Technology Access and Use in Case 3 (Intervention)



As shown in Figure 9, EN's use of the tool provided by eTeams enabled her administratively enough so that she could exercise social agency directed at improving AYS' service quality. As a result, EN's income grew somewhat.

Post-intervention, EN changed her business model. The new business model illustrated a second pattern of access and use that led to growth. Whereas previously EN had taken an asocial approach to technology, she moved to a social acquainted style using an adaptive opt-in email newsletter designed by one of her technical affiliates. EN indicated that expectations were changing regarding how people wanted to be contacted. If she did not shift her business model, then she would no longer have access to the newcomer market. EN said that the new model had reduced her overhead and increased her net income. The boxes in Figure 10, below, depict the researcher's interpretation of this pattern as described by EN.

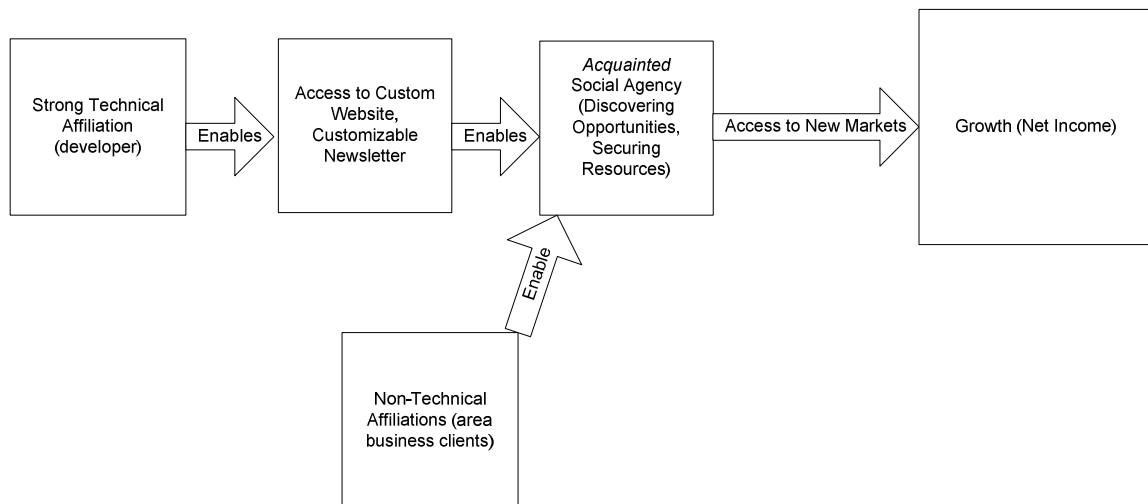
Figure 10: First Pattern of Technology Access and Use in Case 3 (Post-Intervention)



As depicted in the figure above, EN's use of a technical affiliate enables her to access a customizable email newsletter that can replace the coffee-table sized book her greeters previously provided to newcomers. Access to this new tool enables EN to change her business model and redirect her social agency. EN now calls newcomers and becomes acquainted with them, before offering the customized newsletter as a gift. EN's new social and technical approach enables her to address the 'next generation' of tech savvy newcomers to Omaha, greatly reduces her overhead, and, in her mind, improves her service quality by making the advertising process less obtrusive. The outcome of this strategy, enabled by technology, has been an increase in EN's net income. Intriguingly, the strategy has also neatly addressed the deprivation EN's model faced in terms of the Omaha area's low population density creating logistical hurdles.

EN's other post-intervention pattern of access and use built upon both her technical developer affiliation and her non-technical client affiliations to advertise a trade show (partially via a custom built website). EN indicated that this trade show generated a good income for her. The boxes in Figure 11, below, depict the researcher's interpretation of this pattern.

Figure 11: Second Pattern of Technology Access and Use in Case 3 (Post-Intervention)



In the figure above, EN's association with a developer enables her access to two technology tools: a customized website and a customized newsletter. EN leverages her client relationships (Non-Technical Affiliations) to produce special promotions for a physical tradeshow. She sends out the newsletter to her opt-in email clients (exercising her social agency via an 'acquainted' technical approach) and the result is an event that allows all the participants to potentially access new customers. For EN, the event itself constitutes a new market, that is also a revenue generator.

Case Study 4: Massage Therapist

TOB is a massage office that operates out of a non-descript brick building in North Omaha, which is a somewhat economically challenged part of Omaha. Run by a sole proprietor, AE, TOB specializes in cranio-sacral massage therapy, a form of massage that emphasizes soothing mental tension through application of force along the face, head, and neck. Although the exterior of the office is drab, the interior is compact, pleasant, and neat; it smells faintly of incense. Various massage oils, towels, and books on healing surround the central (heavily padded) massage bed. TOB has been operating since 1999, and has maintained a relatively small but loyal customer base since its founding.

Stage of Growth : Based on the statements about the micro-enterprise's small customer base and indications of low profitability (inability to afford various relatively inexpensive items) the code assigned to this micro-enterprise is **Survival**
Customer Dominance : Based on this micro-enterprise having relatively few customers, the business has **High Customer Dominance**

AE originally worked as a transportation coordinator for a large mining operation. Tiring of the stress associated with that job, she undertook skills training in Massage. AE moved to Omaha in 1997. She initially worked for a day spa, but this closed not long after her arrival.

Rather than seek employment with another parlor, AE sought to create her own business, and opened up the storefront in her current location. Over time, she also established a relationship with a local chiropractor. She spends approximately two days out of the week at his office, which is in West Omaha, a solid forty minute drive away.

Affiliations : Based on the statements about the micro-enterprise's association with the chiropractor, it is assigned the code **Non-technical Affiliations : Strong tie (Chiropractor)**
Social Agency : AE's approach with respect to the chiropractor appears to correspond to **Securing Resources (Non-technical Affiliates)**
Deprivation : During the work with AE, it became clear that part of the reason she had established a relationship with a chiropractor on the other side of town, was that about half of her clients were unwilling to drive all the way to North Omaha to get a massage. AE did not have the option of giving up these clients, so she had to find a way to accommodate them. Thus, the micro-enterprise business environment is assigned the deprivation **Low Population Density**

Micro-enterprise Goals

In her initial screening interview, AE expressed a goal of retaining and expanding her customer base, as well as improving her customers' experience. She also expressed concrete technology goals: she wanted to be able to use her "Massage Office Pro" software more effectively, publicize her business better, and learn a bit more about IT concepts, as she felt that she lacked IT knowledge.

Deprivation : Based on AE's statements about her lack of knowledge the micro-enterprise is assigned the code **Knowledge Barriers and Staff Resistance**

Although she wished to increase her business revenues, AE specifically stated that she did not desire to hire more employees or open more locations. This may be due to the fact that AE does not define success in terms of expansion. Rather she believes that:

Success is enjoying what you're doing.. living sustainability.. finding fulfillment and joy out of life and to be able to provide enough income naturally to provide you with all the things that you need.

Micro-enterprise Means

As mentioned, AE operates a straightforward massage business driven by word-of-mouth referrals. She bills customers an hourly rate for massage services. TOB owns the following ICT artifacts: laptop computer, Massage Office Pro software, Quicken software, Microsoft Office software, iPod, and an old desktop computer. TOB also has a website, that is run by a professional hosting company.

IT Adoption : Based on the statements about the micro-enterprise's use of traditional office and accounting applications as well as a domain specific application the micro-enterprise is assigned the code **Above Average IT Adoption**

The raw materials AE uses for massage include oils, lotions, analgesics, sheets, blankets, pillows, pillowcases and towels. Her primary location is a single room; she is also given a single room at the chiropractor's office. Both locations have phone service, running water, heating and cooling, electricity, and wireless Internet, although the wireless Internet did not work properly at her primary location around the time of the initial screening interview.

Deprivation : Based on the statement about the wireless internet not functioning properly the micro-enterprise is assigned a deprivation of **Poor Infrastructure**

Goods

- Massage related products (oils, lotions, towels etc.)
- New furniture (to be distressed)
- Commercial furniture and products (to be resold)
- Desktop Computer (Obsolete)
- Printer
- Laptop (New)
- Website

Services

- Heating, electricity, water, phone
- Wireless Internet (Both locations, faulty at primary location)
- Accounting (Outsourced)
- Advertising (outsourced initially, later through a collective)
- Web Hosting

Non-technical Affiliations

AE was affiliated with a network of woman-owned Midwestern businesses, which she joined to gain new customers. She stated:

I've done a lot of networking and stuff, but it, it really hasn't offered much.

Affiliations : Based on the statement about the micro-enterprise's weak affiliation with the woman owned business network, it is assigned the code **Non-technical Affiliation: Weak tie (Business network)**
Social Agency : Similarly, AE's behavior and discussion appears to correspond to **Discovering Opportunities (Non-technical Affiliates)**

AE said that she was not connected to any non-profit groups that might be helpful to her business. Indeed, she had no awareness of such, outside of the PTAC group with which she shared the building.

Deprivation : Based on the statements about not being connected to any community partner organizations, this micro-enterprise is assigned the code **Non-Technical Affiliations: Social Exclusion (Community Partners)**

Asked about why she thought the Midwestern networking group to be ineffective, AE said:

As with any networking group, and there are plenty of them out there, pretty much everyone there is there to promote their business and not necessarily looking for services and things. But it was a nice format to get up and talk about who I am, what I do, and get some practice that way. So in that way it was good, it was supportive, but aside from that..

She also suggested that the group did not offer adequate attention for her business' particular needs.

AE hires an accountant to do her taxes. She has access to limited legal services through the "American Massage Therapy Association" and the "National Association of the Self-Employed."

Affiliations : Based on these statements, the micro-enterprise is assigned the code **Non-technical Affiliation: Weak ties (Professional associations)**

Technical Affiliations

Asked about whether she got technology ideas from her business networking groups, AE stated:

There really wasn't much discussion on technology at all. It was... emotional support.

AE had a friend who owned a technology consulting company (along the lines of Best Buy's Geek Squad), but the business failed and AE has not had any technical help since the late 1990s. AE has no friends or family members that are proficient with computers.

Deprivation : Based on the statements about the micro-enterprise's lack of access to technical support services for her day-to-day business activities, the micro-enterprise is assigned the deprivation **Poor Organization**

AE characterized her experience with her web hosting company very positively. She stated that the website had a blog, but that she had not yet used this tool in the promotion of her business. She indicated that the hosting provider could offer basic training on tasks related to the website. AE's website, prior to the intervention and during the course of it, was largely static.

Affiliations : Based on the statements about the web hosting company being responsive over the long term, and a good partner for her, the micro-enterprise is given the code **Technical Affiliations : Strong tie (web design company / hosting provider, configuration support, basic training)**
Social Agency : AE's relationship with the contractor appears to correspond to **Securing Resources (Technical Affiliates)**
Technical Agency (Consultant-vendor/Vendor) : AE's use of a single vendor for designing and building her website corresponds to the code of **Vendor** approach
Technical Agency (Value Add/Cost Reduction) : AE was extremely cost conscious. She was interested in adding value using technology but needed to focus on cost first. Therefore, her approach is coded as **Cost Reduction**

Technical Agency : AE's use of a website to advertise her business corresponds to **Asocial (Clients, Informational Website)**

Business and Financial Environment

AE felt that regulation of businesses like hers was fair:

I wouldn't say that my particular business is over-regulated, or even under-regulated. I mean there are just .. there are definitely certain things that have to be done to run an establishment, so I think it's about right.

AE had no experience with the local banking system, as she had no loans. AE was not sure if would be easier for larger or smaller businesses to operate in Omaha, but felt that probably from a theoretical standpoint it would be probably be easier for larger businesses:

I have no idea. Honestly, if I had to say, it might be easier for a larger business, because they tend to have corporate lawyers and accountants skilled and knowledgeable about all the different aspects of the law you know which I may not be aware of, because I just don't delve into that.

AE stated that there were a large number of other massage businesses that offered competition to her own, and that customers could easily switch.

Business Environment : Based on these statements, the level of competition is characterized as **High Competition**
Business Environment : Based on AE's business having little or nothing to do with the provision of information, and observation (during the course of the intervention) that AE's services were static, her micro-enterprise's business environment is assigned the code **Low Information Intensity**

Technical Experience

AE had very limited technical expertise. Essentially, her only formal training was in WordPerfect in the early 1990s. AE had not taken any technical classes. AE expressed a certain amount of fear about technology, primarily due to her lack of knowledge. She also expressed frustration in the sense that she found it difficult to discern what technologies might actually be useful for her to learn. Due to her fear and lack of knowledge, at the time of the initial screen,

AE had not yet opened removed the iPod and laptop she had purchased from their packaging. Asked if she felt technology had played a crucial role in her business' success, AE said: "Critical, no. But it's definitely useful."

IS Experience : Based on the AE's use of a computer only at work, and AE not having taken any technical classes, AE's IS experience is coded as **Low IS Experience**
Adapter/Innovator : Based on the fact that AE wanted to use technology to improve her business' efficiency, not to transform it, AE is assigned the code **Adapter**

Micro-enterprise Business Processes

AE stated that she had a very ad hoc approach to running her business:

I am very day by day, client by client based and to be honest with you, I don't look at my financials until the end of the year when I'm forced to do my taxes. So.. if I have enough money to make it to the next month to the next month to the next month and I have a little extra then I'll pour it into advertising, or new equipment, or training or education, and I'm pretty loosey goosey when it comes to that .. the most challenging part is staying on top of my book-keeping. I don't hate it, I just procrastinate. I'm a terrible procrastinator. So I find at the end of the year when I'm actually doing the paperwork, that it's not bad, but I never do it, until the end of the year. So that kind of leads to anxiety, which you know, is totally unnecessary, but that's what I struggle with [chuckles]

She also mentioned that she was having great trouble with efficiently transferring information from one work site to another.

Deprivation : Based on her statements about being unwilling to use IT to perform a necessary task, AE is assigned the deprivation **Lack of Top Management Engagement**
Deprivation : Based on AE being unable to manage the transfer of information from work site to work site using technology in her day to day, the micro-enterprise is assigned the deprivation **Administratively Inefficient**

Technology Plan

AE indicated in initial conversations that she did not have a specific technology plan. She said that she simply tried to adopt IT that would help her make her business more efficient.

Technical Agency : Based on these statements, the micro-enterprise is assigned the code **No IT Plan**

Micro-enterprise Achieved Functionings

AE's services were greatly appreciated by her customers. She had introduced a variety of technologies into her work that should have been useful in the conduct of TOB's daily affairs, including a specialized software product, a website, and the regular Microsoft Office Suite. She had selected and purchased new hardware on her own. AE had engaged with business networking groups, but she had not been overly successful in using these to build her customer base. She had formed at least one important relationship, however, with the chiropractor who provided her with her satellite office. AE's achieved functionings are indicated in the table below.

Table C4AF. TOB Achieved Functionings

Achieved Functioning Coding Synopsis:

Stage of Growth : Survival

Adapter/Innovator : Adapter

IT Adoption : Above Average IT Adoption

IS Experience : Low IS Experience

Agency Coding Synopsis:

Technical Agency : No IT Plan

Technical Agency (Consultant-vendor/Vendor) : Vendor

Technical Agency (Value Add/Cost Reduction) : Cost Reduction

Technical Agency : Asocial (Clients, Informational Website)

Social Agency : Securing Resources (Technical Affiliates), Discovering Opportunities (Non-technical Affiliates), Securing Resources (Non-technical Affiliates)

Environmental Conditions Coding Synopsis:

Customer Dominance : High Customer Dominance

Business Environment : High Competition, Low Information Intensity

Technical Affiliations : Strong tie (web design company / hosting provider)

Non-technical Affiliation: Weak ties (Professional associations), Weak tie (Business network),

Non-technical Affiliations : Strong tie (Chiropractor)

Micro-enterprise Deprivations

AE's deprivations were primarily social and human. Socially, AE faced difficulties acquiring new customers. She lacked a formal method for advertising, other than giving out

business cards at events she occasionally attended. On the human side, AE seemed to have poor work habits and lacked a proper business plan. She did not have a good grasp of who her customers might be in the future, so that she could reach out to them.

AE's lack of knowledge crippled her productivity. In terms of record keeping and customer management, she attempted to use Quicken and "Massage Office Pro," but ended up entering most of her notes and invoices in a disorganized group of Excel spreadsheets due to the Massage and Quicken programs not being set up properly. As mentioned, the disorganization of AE's Excel records posed significant tax problems for her.

<p>Deprivation : Based on the use of Massage Office Pro imposing high burdens with limited benefits, the micro-enterprise is assigned the code Unfavorable Inclusion (Domain Specific Software)</p>

On the customer tracking front AE was unable to synchronize data on patients from the chiropractor's office with the 'Massage Office Pro' software in her main office. The issue was that she had only one license for Massage Office Pro, and could not access her copy of it remotely (from the chiropractor's office). Although AE had purchased a laptop that might alleviate such difficulties, she had been unable to set it up on her own.

On the record keeping front, AE's Quicken software did not function because she did not know how to login properly, and/or retrieve her password for the existing login. AE could have accomplished her invoicing for tax purposes using Massage Office Pro, but chose not to do so for aesthetic reasons; the resulting documents did not display her logo.

Similarly, AE had an iPod she wanted to use to play music to customers. She could not get the iTunes software working on her computer, and so the iPod was also sitting in a box. She

had been using a playlist of songs on her desktop computer, but the computer often crashed while playing, thus disrupting her massage sessions in a minor but irritating way.

Essentially, AE's capabilities arising out of her use of these IT artifacts were severely limited. The laptop was not serving as a platform for cross-office administrative tasks because AE did not know how to configure it. The Massage Office Pro software was being used for record-keeping only, and only in one office at a time, again because of configuration issues. Quicken was not being used at all due to login issues. Microsoft Office software was being used in an inefficient way to keep records. The iPod was going unused, and Windows Media Player was being used on a limited basis due to crashing issues. AE's deprivations are summarized in the table below.

Table C4DS. TOB Deprivations

<p><u>Deprivation Coding Synopsis:</u> Knowledge Barriers and Staff Resistance Poor Infrastructure Non-Technical Affiliations: Social Exclusion (Community Partners) Poor Organization Lack of Top Management Engagement Administratively Inefficient Unfavorable Inclusion (Domain Specific Software) Low Population Density</p>
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IT Interventions (Role of the IT Therapist)

Based on the investigator's analysis, it appeared that AE's human challenges could be addressed by enhancing her mobility, connectivity, and knowledge. To some extent, it also appeared that AE's social challenges might be alleviated through the provision of knowledge. Thus, the following interventions were performed:

Table C4I. TOB Interventions

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
------------------------	--------------------------	---------------------------------

Installation of LogMeIn	Improved mobility, access to information	Poor Infrastructure
Repair of wireless network	Access to information	Poor Infrastructure
Training on Massage Office Pro	Improved conceptual knowledge	Unfavorable Inclusion (Domain Specific Software), Administratively Inefficient
Configuration of music system, training on this	Improved quality of service	Knowledge Barriers and Staff Resistance
Provision of low cost software	More efficient management of business	Poor Infrastructure
Training on OpenOffice, basic spreadsheet techniques	More efficient management of business	Knowledge Barriers and Staff Resistance, Lack of Top Management Engagement
Transfer of Massage Office Pro data to laptop	Improved mobility, access to information	Administratively Inefficient

As noted above, the free LogMeIn software was installed on both desktop and laptop; LogMeIn permits terminal access to Windows machines for free. An adaptor was purchased to make AE's laptop compatible with the 'Wireless A' standard used by the building network. A subsequent visit found the adaptor unnecessary; citing the therapist as a technology authority, AE had requested that the building wireless be reconfigured or upgraded. The building manager complied!

Training was conducted to make AE familiar with the Massage Office Pro invoicing functionality, and the therapist configured the invoice template to include the TO logo. As it turned out, placing the logo on the invoice required only three clicks and four minutes of time.

The therapist installed the iTunes software successfully on the laptop, and configured the iPod with AE's existing music collection. The therapist also trained AE on some basic windows functionality, including the copying and moving of files en masse. Finally AE, was taught how to back up Massage Office Pro data. Subsequent to learning that Massage Office Pro data could be backed up and moved, AE indicated that she wished to discard her desktop computer entirely. She reasoned that the laptop, as configured, was working so well that the

desktop had become entirely superfluous. The therapist therefore moved Message Office Pro data and supplementary documents over to the laptop.

AE lacked funds to purchase an additional license for Microsoft Office, so the therapist installed OpenOffice on the laptop and transferred all documents from the desktop to the laptop, including the old record-keeping Excel Spreadsheets.

<p>Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code Strong tie (eTeams, time limited training and configuration assistance)</p>

Capabilities Enabled

AE was evaluated twice. One evaluation was made about four months after the intervention work had been completed. The other evaluation was made in May of 2011. The evaluations both uncovered significant changes in AE's capabilities.

During the intervention, AE purchased, of her own accord, a dock for her iPod. In both evaluations, AE expressed enthusiasm about how the use of the iPod and music dock improved her interactions with clients, compared to the situation with her music playing from her computer, before. She indicated that having the music set up properly reduced her own stress levels as well.

<p>Capability : Based on these statements, the micro-enterprise it appears that due to training on the configuration of the music system the micro-enterprise can be assigned the code Learning and Labor Productivity and Service Quality</p>

AE estimated that the IT intervention saved her \$2700 in time and money. Her laptop had been set up in just the right way to enable her job function. Similarly, she found that she was as productive on the Open Office software as she ever was on Microsoft Office. Thus, a free piece of software was providing her with compelling benefits.

AE had previously spent a great deal of time attempting to format her invoices appropriately, and correcting them due to synchronization problems between Microsoft Office and Massage Office Pro. During the first evaluation interview, she expressed that the quality of her invoicing has significantly improved. She also mentioned that being able to invoice at the doctor's office had saved her a significant amount of time.

Capability : Based on these statements, it appears that due to training on OpenOffice and Massage Office Pro, as well as the transfer of data to Massage Office Pro the micro-enterprise is assigned the code **Administrative Efficiencies, Service Quality**

Despite having changed platforms, AE managed a combination of faster turnaround and improved formatting on her invoices that allowed her to preserve the relationship she had with the chiropractor (their partnership was alive and well by the time of the second evaluation), and thus maintain one of her main revenue streams

AE's comments also indicated that she believed her conceptual model of 'how computers work' had been broadened and deepened as a result of the intervention. AE gained an understanding of the importance of backups to the maintenance of her business. On a personal level, both post adoption interviews suggest AE's stress in relation to technology was reduced.

Capability Enabled : Based on AE's statements, the micro-enterprise is assigned the code **Reduced Stress**

AE claimed in the first evaluation that her configuration of software and hardware was final, and that she did not wish to investigate any further enhancements. She stated:

I'd rather have my hands on bodies than on technology

The table below summarizes the capabilities enabled by the interventions.

Table C4PES. Capabilities Enabled by Interventions, Summary

Intervention	Capabilities Enabled	Growth Related
Configuration of music system, training on this	Learning and Labor Productivity, Service Quality	No
Training on Open Office and Massage Office Pro, data transfer to Laptop	Administrative Efficiencies, Service Quality	<u>Yes</u>
(All of the above)	Reduced Stress	No

Overall, the technology intervention appears to have saved AE money, time, and had an important impact on her ability to add and retain customers and maintain business relationships.

Deprivations Remaining Post Intervention

Despite the gains AE made, she still had frustrations with technology. Asked about her primary obstacle in adopting technology, AE stated:

Knowing how to use it, really, I mean there's, and sifting through the things that are really not useful and recognizing what exactly will benefit, what's going to benefit me and what's a distraction.

Although AE had mastered a number of techniques related to billing and spreadsheets, she expressed a good deal of frustration that she had forgotten many of the keyboard shortcuts that she had learned during the intervention. She stated:

I still feel pretty insecure about it.. and I think actually what it would take is for me to like, enroll in a course at metro and learn how to use Excel. You know, do a course, where you're actually in there, and you have assignments, and you have to do it, and you get in the habit of doing it... I'm a repetitive based.. if I do it a number of times.. then, I've got it. But it takes practice...

AE still faces a situation, socially, in which she is isolated from other businesses and it is difficult for her to find new customers. The table below summarizes AE's remaining deprivations.

Table C4DR. Deprivations Remaining for TOB

Deprivations Remaining :*Knowledge Barriers and Staff Resistance [partially solved]***Non-Technical Affiliations: Social Exclusion (Community Partners)***Administratively Inefficient [partially solved]***Poor Organization***Post-Intervention Patterns of Access and Use*

In the time following the first evaluation, AE took a variety of very proactive technology steps. Notably, she taught herself how to use the Quicken online platform that she had previously found too daunting. She also began actively using the blog feature of her site to advertise a new service (Group Yoga Sessions), and has apparently attracted a number of new customers as a result. Based on the principle of suspicion, the researcher logged into AE's blog with her and observed that customers had, in fact, offered a number of different comments related to the blog material. AE allowed the researcher to install a hit counter, and in slightly less than a month there were 25 unique visitors, a substantial number given the limited number of customers that AE has to begin with.

Interestingly, during the second evaluation, AE indicated that she had abandoned Massage Office Pro entirely, and was maintaining customer notes in a single OpenOffice spreadsheet on her laptop, and customer invoices in a "Quicken Online" account. Asked why she had abandoned Massage Office Pro, AE said:

The massage office program, you know it was ... a chunk of money, and to have to fork out that same chunk every year or every couple of years is not necessarily in my mind, feasible. They weren't adding anything, basically, the new functionality was a new format for insurance billing, which I didn't do. So that's what really irritated me... [their sales rep said] basically it's not going to be anything new for you, and I was like.. then why would I spend the money to keep it alive on my computer [chuckles].

AE had set up a Gmail account and begun emailing a newsletter to her customers, post-intervention. After reading online reviews, she purchased a new multi-function printer capable of printing double-sided tri-fold brochures, and configured it on her own. On the day of the second evaluation interview, AE expressed that she had been evaluating the XOOM tablet and the iPad as replacements for her laptop. She subsequently purchased the XOOM and a cellular data plan, and has indicated that she finds the tablet useful for note-taking during the outcall Yoga sessions she has begun, and that it is the logical successor, in terms of mobility, to her laptop which she now keeps at home.

Table C4CCA. Code Changes and Additions for TOB

Code Changes/Additions Post-Intervention:

Technical Agency [addition] : Based on the statements about the micro-enterprise's use of the blog, her micro-enterprise is given the codes **Social Acquainted (Customers, Email Newsletter)**, and **Social Acquainted (Customers, Blogging)**

Technical Agency (Value Add/Cost Reduction) [change]: Based on AE's post-intervention approach to technology she is assigned the code **Value Add** from *Cost Reduction*

Technical Agency [change] : Post intervention, AE had clearly come to a much better understanding of how technology could benefit her business. Therefore, she is assigned the code **IT Plan**

Where AE had previously not used a computer at home, she now stated:

I do spend time at home shopping and stuff like that on it and reading and there are some excellent websites that offer a lot of information that I enjoy reading

Respecting her current views on technology, AE stated in the second evaluation interview:

Anything that technology can do for me to make my life easier, I am all for it.

Overall, as demonstrated by her post-intervention behaviors, the intervention appears to have empowered AE to engage with technology and make technology decisions on her own,

resulting in her being able to attract new customers and network better. Regarding the impact of the training, AE stated:

You definitely cut down my technologically learning curve, especially with the music issue and some other things that you showed me how to do.. that helped

Case 4 Analysis

It is first important to note that AE displayed two separate patterns of growth-related access and use, one related directly to the intervention, and one that occurred separately post-intervention. The apparent outcomes of these patterns are evaluated separately.

The outcome of the intervention (in which AE had received training and configuration assistance) was that AE used technology much more than she did before. She was able to achieve growth and beneficial secondary effects as a result.

To understand the pattern of access and use that led to this significant growth outcome, it is helpful to make some generalizations about AE's resources before the intervention (economic, human, social) and her agency style before the intervention. The question is posed: What did the intervention allow AE to do that she could not do before? In other words, what capability was enabled by AE's use of technology that allowed AE to grow her business?

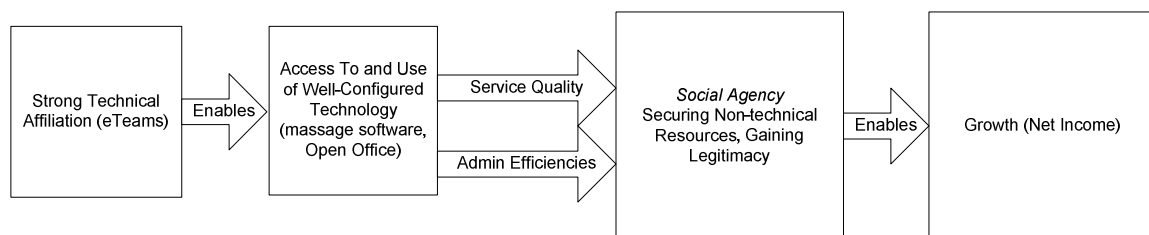
From an economic standpoint, prior to the intervention, AE's business was surviving. AE (barely) had the resources to purchase needed hardware and software. From a human standpoint, AE faced multiple related challenges. Simply put, her poor conceptual knowledge had led to her using her software in an unfavorable way, which had led to her being unwilling to use it at all. From a social standpoint, AE faced the difficulty that her only major technical

affiliate was focused exclusively on web development. Thus, she had no one to turn to for day-to-day administrative support.

AE had exhibited active social agency and technology-related social agency. She was attending business networking events, had formed a partnership with the chiropractor, and had secured the services of the company that built her website. In all likelihood, if she could have afforded it, AE would have paid for technical or administrative assistance, as well.

The intervention gave AE a strong (albeit temporary) tie to a trusted technical affiliate (eTeams) that could help her configure her software and use it properly. What the intervention enabled AE to do, that she had not done before, was improve her business' administrative efficiencies and service quality to the extent that she gained legitimacy in the eyes of her partner, the chiropractor, as a going business concern. Preserving the relationship allowed her to hang on to her insurance revenue stream, without which her business was at risk of failing. Figure 12, below, depicts the researcher's interpretation of the abstract pattern of access and use that facilitated the growth outcomes in the case.

Figure 12: Pattern of Technology Access and Use in Case 4 (Intervention)

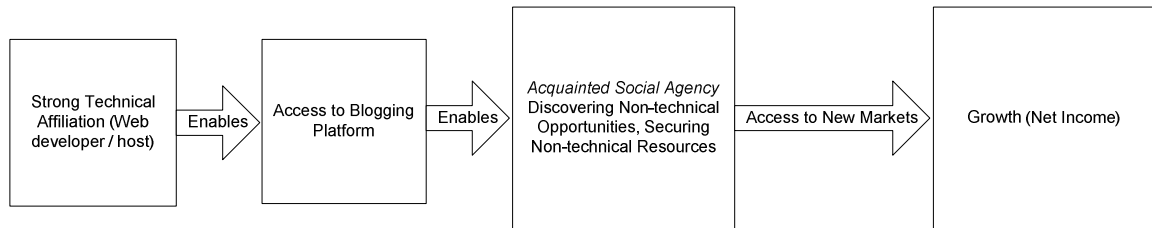


As illustrated in Figure 12, AE's association with eTeams helped her gain access to administrative efficiencies, and to improve her service quality. AE leveraged these improvements to secure her affiliations and gain legitimacy.

AE exhibited a second pattern of technology access and use, post-intervention.

According to AE, she had built up a new line of business (personalized Yoga sessions) around an active blog and email newsletter. AE indicated that she had asked her web designer/host to train her on the blogging platform, and she displayed good proficiency in it while demonstrating the blog to the researcher. AE's use of these new technologies marked a change in her technology style from asocial to social acquainted, as well as a change in her perception of technology from a cost-focused one to a value-added one. Figure 13, below, depicts this pattern.

Figure 13: Pattern of Technology Access and Use in Case 4 (Post-Intervention)



As indicated by the figure, AE's association with a strong technical affiliate enabled her access to a blogging platform that permitted her to exercise social agency in engaging with her existing customers in a dialogue related to new services. Access to a new revenue stream from existing customers enabled TOB to enjoy some net income growth.

Case Study 5: Online Boutique

There was no fabric awning for AB. It was a digital business, tastefully done up in purple and white, a professional website, complete with comprehensive product descriptions, photographs, and a working (Zen-based) online shopping cart. The shopping cart system enumerated a variety of hand produced, unique Peruvian goods intended for the Omaha market.

AB was the brainchild of SZ, a recent Peruvian immigrant with strong English skills whose inspiration had been a business technology class at the Juan Diego center. AB had initially wanted to open a physical Peruvian boutique to compete with an established store in a trendy part of Omaha. The competitor had been very well received by the Omaha community. Unfortunately, AB lacked funds and the ability to secure loans, so she settled on a digital model. Her plan was to advertise her shop at crafts fairs, through the Internet, and on posters. To get her site built, she hired an American web designer. She invested most of her savings in the construction of the site, in hosting it, and in purchasing Peruvian merchandise through family contacts in Peru.

Deprivation : Based on SZ's inability to get bank loans, the micro-enterprise is assigned the deprivation **Lack of Access to Loans**

Deprivation : Based on SZ having spent most of her savings to create the website, the micro-enterprise is assigned the deprivation **Lack of Savings**

Micro-enterprise Goals

SZ's ambitions were to significantly improve AB's sales (there had been only two sales during the period from July to September of 2009) and site traffic (there had been decent site traffic). She had heard about the use Google AdWords campaigns and site keyword optimization as approaches to boosting website traffic, and expressed a desire to use these technologies. Unfortunately, she did not understand how search engines worked, or how their functioning connected with her business goals. During the course of the initial discussion, it became clear that SZ had no backup of AB's site design / materials. SZ also had no knowledge about the use of SSL certificates to secure credit card transactions. SZ, once informed about the importance of backups and certificates, expressed a strong desire to back up her site.

Stage of Growth : Based on the statements about the micro-enterprise's struggle getting initial customers, the stage of growth assigned to this micro-enterprise is **Existence**

Customer Dominance : Based on the micro-enterprise having very few customers, it is assigned

the code **High Customer Dominance**

Adapter/Innovator : Based on SZ trying something entirely novel that did not exist in the Omaha community (an online-only Omaha-targeted Peruvian store) the micro-enterprise is assigned the code **Innovator**

Business Environment : Due to AB being online, and its success being almost entirely related to AB's ability to get information about appealing products and present this information to customers, her micro-enterprise's business environment is characterized as **High Information Intensity**

Technical Agency : Based on SZ not having an understanding about how basic IT concepts related to her business, the micro-enterprise is assigned the code of **No IT Plan**

Deprivation : Based on SZ's lack of conceptual understanding of the Internet, and e-commerce, the micro-enterprise is assigned the code of **Knowledge Barriers and Staff Resistance**

Micro-enterprise Means

At the beginning of the intervention, SZ had no income from her business, only savings. She performed site chores in cafes and at her small apartment. SZ's site hosting was GoDaddy.com. She paid her site hosting fees monthly. SZ owned a modern laptop, which she used to edit her website content, and which also contained the Microsoft Office Suite; she had no need for an accounting package due to her low sales. She owned a good quality digital camera which she used to photograph products. She had Internet service at her apartment. She owned a cellular phone. She had, in storage, an extensive collection of Peruvian goods imported from Peru.

IT Adoption : Based on these statements the micro-enterprise can be characterized as having **Average IT Adoption**

Goods

- Laptop
- Digital camera
- Peruvian novelties
- Static (content-editable) website design

Services

- Heating, electric, water, phone
- Cable Internet (Home only)
- Web Hosting (GoDaddy)

Non-technical Affiliations

SZ did not have access to any legal or financial services. She had taken classes at the Juan Diego Center in South Omaha, but was not affiliated with it otherwise. She had put up stalls at Farmers' Markets with and been able to sell goods, but these did not represent an ongoing opportunity. The flyers she distributed at the Farmers' Markets listing her website had not increased sales. SZ had created an extensive business network of friends and relatives back in Peru, from whom she could source craft items, but she had no such network in Omaha.

Social Agency : Based on her description, the micro-enterprise is assigned the codes **Securing Resources (Non-technical Affiliates)** and **Discovering Opportunities (Non-Technical Affiliates)**, Based on her attempt to join the BBB, SZ is assigned the code **Gaining Legitimacy (Non-technical affiliates)**
Affiliations : Based on her description, the micro-enterprise is assigned the code **Non-technical Affiliations: Strong ties (Peruvian business network)** and the code **Non-technical affiliations: Weak ties (Farmer's market participation)**

SZ applied to the Better Business Bureau (BBB) for a seal of approval for her business. Unfortunately, the BBB required that businesses receiving its seal have been in operation for at least a year, which AB had not. SZ was not aware of other community programs that could be helpful to her business.

Deprivation : Based on the statements about the micro-enterprise's lack of access to Omaha-area social connections the micro-enterprise is assigned the deprivation **Social Exclusion (from Omaha Community, Community Partners)**

Technical Affiliations

SZ had met her web designer "by chance" at Bellevue University. She formerly had access to technical help through this website designer, but said designer (a student freelancer) had apparently closed down her business, leaving SZ without the ability to make any fundamental design changes or address problems if they arose with AB's shopping cart. SZ otherwise had no friends or relatives who could offer technical assistance.

Deprivation : Based on the statements about the micro-entrepreneur's lack of ongoing technical support, the micro-enterprise is assigned the deprivation **Poor Organization**

Business and Financial Environment

SZ did not have an opinion about the regulatory environment in Omaha, as AB had been in operation for too short a time. She expressed frustration that "so much attention" was paid to brick and mortar stores in comparison to online businesses, in Omaha, however. She also suggested that she could not get the loans that she needed. She felt like it would be easier for larger businesses, such as her brick and mortar competitor, to operate in Omaha, rather than smaller businesses.

Deprivation : Based on the statements about the micro-enterprise's limited access to capital, the deprivation **Lack of Access to Capital** is assigned

Technical Experience

SZ had strong basic computer skills with Microsoft Office products and Windows. She had picked up her computer skills during her time studying in College at Peru, and had gained additional skills attending training classes at the Juan Diego center. SZ was adept at searching using Google; she described how she had researched her competition online before starting her business. She had no issues editing and touching up digital photographs, uploading these, or making basic edits to her website. Technology obviously played a critical role in SZ's business.

IS Experience : Based on the statements about the micro-enterprise's having attended multiple computer classes and using a computer for work and leisure activities, the micro-enterprise is assigned the code of **Moderate IS Experience**

Micro-enterprise Business Processes

SZ indicated that she had focused on selling jewelry that she felt was overpriced in most American markets. Certainly, SZ had collected a large inventory that contained a number of attractive items. For publicity, as indicated, SZ attempted to periodically distribute advertising

flyers at Farmers' markets. Of SZ's business processes, her advertising practices were the most clearly underdeveloped. SZ had no means of advertising online, and had not cultivated local connections in Omaha to advertise, either.

Technology Plan

SZ did not have much of a technology plan beyond trying to advertise her business online. She felt that her website was adequate to her purpose and did not see a need to upgrade it or edit it. SZ seemed to have a simplistic view that "if you build it they will come." She was not aware of "trust" certifications until informed by the researchers, nor was she aware of the need to backup her files.

Technical Agency (Consultant-Vendor/Vendor) : Based on SZ's only having dealings with a single vendor her approach can be coded as **Vendor**
Technical Agency : Asocial (e-Commerce website)

Micro-enterprise Achieved Functionings

From a human standpoint, SZ was a moderately skilled computer user. She also apparently had good business connections in Peru. Her idea for an online boutique was innovative given that no one she knew even owned a website. She spoke good English and could read relatively well. SZ's achieved functionings are summarized in the table below.

Table C5AF. AB Achieved Functionings

Achieved Functionings Coding Synopsis :
Stage of Growth : Existence
Adapter/Innovator : Innovator
IT Adoption : Average IT Adoption
IS Experience : Moderate IS Experience

Agency Synopsis:
Technical Agency : No IT Plan
Technical Agency (Consultant-Vendor/Vendor) : Vendor
Technical Agency : Asocial (e-Commerce website)

Social Agency : Securing Resources (Non-technical Affiliates), Discovering Opportunities (Non-Technical Affiliates), Gaining Legitimacy (Non-Technical Affiliates)

Environmental Conditions Coding Synopsis :

Customer Dominance : High Customer Dominance

Business Environment : High Information Intensity

Non-technical Affiliations: Strong ties (Peruvian business network), Weak ties (Farmer's market participation)

Micro-enterprise Deprivations

Unfortunately, SZ suffered from a number of significant deprivations, of a human, social and economic nature. Perhaps the most significant of the deprivations was SZ's lack of cultural fluency, which was reflected in AB's clunky, awkward product descriptions and rambling 'About Us' page. SZ appeared to lack a fundamental grasp on how to appeal or market to a Midwestern audience.

Deprivation : Based on these statements the micro-enterprise is assigned the deprivation **Lack of Cultural Fluency**

As well, by the time eTeams first met with her, SZ was running out of savings and was looking for full time jobs. As a result, she had significant time constraints and a high level of stress. Finally, AB had not been around long enough to be certified by the Better Business Bureau or any reputable online 'trust' merchants. Thus, her business lacked credibility. SZ grew increasingly despondent about her chances of success over the course of the intervention. Her history of failure with the business seemed to profoundly upset her. She had no one to turn to, she indicated, as hers was the only legitimate web business within her social circle. SZ's deprivations are summarized in the table below.

Table C4DS. AB Deprivations

Deprivation Coding Synopsis:
Social Exclusion (from Omaha Community, Community Partners)
Poor Organization
Lack of Access to Loans
Lack of Savings
Lack of Cultural Fluency
Knowledge Barriers and Staff Resistance

IT Interventions (Role of the IT Therapist)

To address SZ's deprivations and goals, eTeams proposed to help SZ back up her site, clean up her product descriptions, obtain a trust certificate, and launch a Google AdWords campaign. The team followed through and backed up SZ's site, and linked the AdWords campaign they prepared with the site; SZ would have only to press a button to launch the campaign.

Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and support)**

Capabilities (Not) Enabled

Unfortunately, the case ended there. SZ expressed to the ICT therapists that 'she did not have funds to run the AdWords campaign' they had set up. She indicated that she was not comfortable advertising until she had updated her product descriptions, as well, but she did not have time to do so. After failing to show up for a scheduled meeting, she informed the team that she had been hired for a full time job. SZ then disappeared. Her phone number was disconnected and she did not respond to email inquiries. In November of 2009, her website went offline.

Case Analysis

For a web-only micro-entrepreneur, SZ exhibited an odd lack of technology-related social agency. She had not attended any technology-focused seminars, for instance. She lacked an IT plan but had not sought any advice, outside of eTeams, in relation to what technology steps would be expedient. She had not read websites on technology entrepreneurship, though she was quite capable of finding such. Given her need to form as many connections as possible to grow her business, SZ's asocial approach to technology also seemed strange. Though aware of their existence, for instance, SZ had not established her business on Facebook, Yelp, or LinkedIn. This combination of fundamental missteps-- passive technology-related social agency, asocial approach to technology, and lack of an IT plan-- probably undermined any chance SZ had to succeed on her own.

Of course, once she was offered assistance, the deprivations that prevented SZ from using technology to grow in any way were financial (Lack of Access to Loans, Lack of Savings). By the time that SZ was in a position to exploit the digital advertising campaign set up for her, she had exhausted her savings. SZ could perhaps have compensated for her lack of financial resources by partnering up with other businesses, but she was unable to make those kind of strong connections in America. The table below summarizes SZ's key technology issues and non-technical deprivations.

Table C5KI. AB's Key Issues

<p><u>Key Technology Issues:</u> Lack of an IT Plan Asocial Approach to Technology (Lack of) Technology-related Social Agency</p> <p><u>Key Non-Technical Deprivations:</u> Lack of Savings Lack of Access to Loans</p>

Case 6: Restaurant

The green awning of the EA Mexican restaurant has been a fixture of South Omaha's Latino community almost from the community's inception. It was the first Mexican restaurant to open there; its food is both delicious and uncompromisingly down-home and authentic. On weekdays during the lunch hour, the restaurant has a smattering of mostly Caucasian customers. Their chatter is punctuated by the 'dings' of the ancient cash register, and the occasional thump of passing car stereos pumping bass-heavy Mexican rap.

EA is owned by a Mexican-American immigrant, IC. IC got the idea of starting a restaurant after his brother opened up a successful restaurant-supply wholesaler. EA's example, has, for better or worse, inspired a raft of competitors; it has also earned IC a fair amount of recognition – he has been mentioned in the Omaha World Herald, and even, in passing, by the New York Times. EA employs seven people, of whom four are full time employees.

Unfortunately, EA is more well known than financially successful; in the initial screening interview IC suggested that with the recent cold weather in Omaha and the general economic malaise, he was 'just barely scraping by.' Both IC and his wife work long hours at the business; IC joked that they 'might as well live there.' Although IC speaks moderately fluent English, his wife and the staff do not.

Stage of Growth : During a tour of the restaurant, IC indicated that he was struggling to find funds to replace worn out capital equipment. Due to this statement, and EA's very limited profits as indicated by IC, the micro-enterprise is assigned the code of **Survival**

Adapter/Innovator : IC was not interested in fundamentally changing his business using technology, simply in making it more incrementally efficient. Therefore the micro-enterprise is assigned the code of **Adapter**

Customer Dominance : Due to IC's having to rely on weak connections with a relatively large number of customers to fund operations, the micro-enterprise is assigned the code **Low**

Customer Dominance

Deprivation : Based on much of the restaurant lacking fluency in English, the micro-enterprise is assigned the deprivation **Lack of English Fluency**

Micro-enterprise Goals

IC's primary ambitions are to: gain better control over his business, attract more customers, and to raise his quality of service for existing customers. During better times he had doubled the size of the restaurant by purchasing an adjacent structure and connecting the two halves. Now, the 'older' half sits largely unused. When EA does get busy, the business' inefficient processes impair service quality. Taking orders involves the wait-staff translating English to Spanish for the benefit of the moderately illiterate cooks, on handwritten order sheets that must be ferried back to the kitchen and preserved after customers are served (the sheets double as the checks); mistakes are aggravatingly common. Asked to elaborate on his ideas of better business control, IC indicated that, for one thing, he was interested in being able to supervise his employees more closely, which would be facilitated if he could worry less about basic administrative issues. He felt that, from a resource standpoint, he was ordering supplies "based on intuition" rather than a good sense of, for instance, how much ketchup EA was actually consuming in a given month. IC felt that the ordering process and the supply issue were related; he wanted to see which orders were most typical so that he could stock more of the corresponding supplies. He had heard that other restaurants used "point of sale" systems connected to the kitchen and the supply room, and he was interested in purchasing such a system, but did not know where to start.

Deprivation : Due to IC not understanding 'where to start' the micro-enterprise is assigned the deprivation **Knowledge Barriers and Staff Resistance**

Deprivation : Due to EA's process being laborious and paper-driven, the micro-enterprise is assigned the deprivation **Administratively Inefficient**

Technical Agency (Value Added/Cost Reduction) : Due to IC's focus on using IT to reduce overhead the micro-enterprise's approach is characterized as **Cost Reduction**

IC expressed a strong interest in deploying a basic website, as a means of marketing his business, with its rich history, to English-speakers. Practically speaking, he felt that his staff's limited facility with English was costing the restaurant customers due to the staff not being able to offer the best directions to customers unfamiliar with the area. He indicated that getting English speaking customers to travel all the way to South Omaha was very difficult. He emphasized that in order to motivate customers to travel long distances, South Omaha needed to be a 'destination,' that it needed other kinds of stores besides restaurants to broaden its appeal.

Deprivation : Based on IC's statements, the micro-enterprise is assigned the code **Non-technical Affiliations: Social Exclusion (from English speaking community)**
Deprivation : Based on IC's commentary about Omaha being 'spread out,' and the corresponding difficulty EA has in motivating customers to travel long distances, the code **Low Population Density** is assigned

IC's desire to expand his business appeared to be related to his definition of success as providing protective security for his family, and giving his children opportunities that he himself had lacked. Repeatedly, IC expressed how pleased he was that his sons could attend UNO. He emphasized that one of the reasons EA needed a more regular income was so that some of this could be redirected for tuition and school expenses.

Micro-enterprise Means

IC is a salaried employee of his own business. His equipment consists of his restaurant building, and associated furnishings, as well as machinery for cooking. At the time of the initial screening interview, he owned a very old, virus-infected, desktop computer. As this computer was unusable, he would routinely 'borrow' his son's laptop to check his email. IC had multiple

suppliers of raw materials for his restaurant. He had his son place online orders from the suppliers' B2B systems as he did not feel comfortable doing so.

Deprivation : Given IC's unwillingness to use even basic web technologies on his own, the micro-enterprise is assigned the deprivation **Lack of Top Management Engagement**
Technical Agency : As IC only used technology for productivity and ordering from online sites the micro-enterprise is assigned the code **Asocial (Productivity)**

In terms of services, IC received heating, electricity, and telephone services from standard Omaha area providers. He had Cable Internet at work but not at home. IC performed his own accounting using a paper system; he would consolidate the receipts from a mechanical cash register. He had no legal counsel.

Goods

- Restaurant equipment (furnishings, cooking equipment, etc.)
- Raw materials (tomatoes, tortillas, etc.)
- Desktop computer (ten years old)
- Mechanical cash register
- Son's laptop computer

Services

- Heating, Electricity, Water, Phone
- Cable Internet (Work Only)

IT Adoption : Due to IC's not using an accounting application, the micro-enterprise is assigned the code **Below Average IT Adoption**
IS Experience : Based on IC's use of a computer only at work and his not having taken any skills classes, the micro-enterprise is assigned the code **Low IS Experience**

Non-technical Affiliations

IC attended occasional business seminars put on by the Omaha Chamber of Commerce. He had maintained a catering relationship with the local Air Force base for certain special occasions throughout the year, though this had apparently ended. He had a special relationship with his brother the wholesaler, meaning that he could get discounts on certain goods. He had

briefly worked with NBDC, but had found its advice unhelpful and thus had cut ties. He did not network regularly, as he was occupied with running his business.

Affiliations: Based on this description, the micro-enterprise is assigned the codes **Non-technical Affiliation: Weak tie (Omaha Chamber)** and **Non-technical Affiliation: Strong tie (Brother in wholesale)**
Social Agency : As IC's primary social transactions were with his brother, and his suppliers, his approach corresponds to **Securing Resources (Non-Technical Affiliates)**

Technical Affiliations

IC had received no individualized technical assistance, and his only technical resource was his son, who was often busy with school. He did not have any other family members who were technically savvy. He had never hired anyone to perform technical services for him or his business. IC stated that most of the businesses in his sector were very technologically conservative and that he did not have any technology exemplars, as a result.

Deprivation : Based on the lack of available technical support for ongoing operations, the micro-enterprise is assigned the code **Poor Infrastructure**

Business and Financial Environment

IC expressed frustration with the amount of collateral he had needed for the long term loans for the purchase of the EA restaurant building; he was also dissatisfied with his interest rates. He suggested that the local banking system set high hurdles for small businesses, that would be impossible for most to clear. He indicated that he had tried to get an additional round of loans to finance capital equipment upgrades, and had been rejected. IC maintains a checking account with a local bank. IC expressed a great deal of frustration about the level of competition that he faced in South Omaha. He said:

When we open we were among the few Mexican restaurants, now you count sixty-six or sixty-seven restaurants!

Deprivation : Based on IC's inability to access new loans, the micro-enterprise is assigned the code **Lack of Access to Loans**

Business Environment : Based on EA having a high number of competitors, the micro-enterprise business environment is assigned the code **High Competition**

Business Environment : Based on EA's menu remaining static during the intervention, and during follow-up visits, the micro-enterprise is assigned the code **Low Information Intensity**

IC described how South Omaha had been hit harder than other parts of Omaha during the recession. He suggested that the community needed to be better integrated into the rest of Omaha for it to thrive. IC mentioned that the STRATCOM base near South Omaha had been an economic anchor, but that higher security requirements for contractors such as caterers after 9/11 had reduced its ability to contribute.

Technical Experience

IC stated that he had never had time to take technology skills classes. He said that he relied on his son to help him perform tasks such as occasional Google searches. He indicated that, outside of certain specialized restaurant equipment (such as fry cookers), technology had not played a critical role in the success of his business. IC had, at best, a rudimentary competence with standard software products. He was quite intimidated by computers, to the extent that when his desktop had gotten a virus, he had simply 'given up' on it.

Deprivation : Based on IC's unwillingness to perform searches himself, he is assigned the deprivation **Lack of Top Management Engagement**

Micro-enterprise Business Processes

IC stated that he had simply learned about what worked and what did not work over time in terms of business processes, and that he had a largely intuitive grasp of the supply needs and business cycles of the restaurant. He described, for instance, how he expected to make

most of his money during the warmer months, as Omaha consumers were hesitant to venture to South Omaha during the Fall or Winter.

IC's processes were regular, if inefficient. Based on receipt collections, and employee sign-in and sign-out sheets, he tabulated his net profits and paid salaries. He took down supply needs in a notebook, and had his son periodically order items online from his brother's wholesaler. As far as advertising, he would place ads in the local papers (such as the World Herald) whenever he could afford to, although he lacked a way to track the effectiveness of such ads.

Technology Plan

IC had a basic plan for enhancing his business using technology. This plan involved the automation of existing manual processes within his business, and accessing security cameras via his computer. He had little conceptual understanding of general computing, Internet advertising, social media, or other aspects of technology that might benefit his business.

Technical Agency : Based on IC's being able to connect the idea of using technology to ways to improve his manual accounting processes associated with receipts, etc., the micro-enterprise is assigned the code **IT Plan**

Micro-enterprise Achieved Functionings

From a human standpoint, IC was skilled at running his business using only pen and paper. Practically speaking, he had decent control of his employees and costs. He spoke decent English and could read and write basic English. He knew enough accounting to keep his own books. The table below summarizes the totality of IC's achieved functionings.

Table C6AF. EA Achieved Functionings

Achieved Functionings Coding Synopsis:

Stage of Growth : Survival
Adapter/Innovator : Adapter
IT Adoption : Below Average IT Adoption
IS Experience : Low IS Experience

Agency Coding Synopsis:
Technical Agency : IT Plan
Technical Agency (Value Added/Cost Reduction) : Cost Reduction
Technical Agency : Asocial (Productivity)
Social Agency : Securing Resources (Non-Technical Affiliates)

Environmental Conditions Coding Synopsis:
Customer Dominance : Low Customer Dominance
Business Environment : High Competition, Low Information Intensity
Non-technical Affiliations: Weak tie (Omaha Chamber), Strong tie (Brother in wholesale)

Micro-enterprise Deprivations

IC's deprivations were economic, human, and social in nature. Much of EA's monthly income went to debt service for the EA building. As a result, IC indicated that he was using obsolete fryers, refrigeration units, and so on; he could achieve much greater efficiency if he could upgrade, but he lacked the capital. EA's primary computer was so old as to be unusable with respect to the modern Internet or even recent versions of Microsoft Office. IC expressed a desire to run regular newspaper advertisements, but lacked the revenue for that as well. Asked whether or not he had applied for additional business loans, IC indicated that he had and had been denied because "banks around here do not trust Hispanic businesses." Even though EA had been in continuous operation since the early 1990s, IC said that banks lumped it along with much newer South Omaha ventures in terms of risk.

From a human standpoint, IC suffered from a lack of basic technical skills. He was not a competent user of Windows or Internet Explorer; he relied on his son, but his son could not, or was not willing, to solve even fundamental problems like the virus-infection on IC's desktop computer. As a result of his lack of access to hardware, and his inability to use the Internet, IC

could not research advertising strategies or equipment of interest (such as the point of sale system) even though he desired to do so.

Socially speaking, IC faced both technical and non-technical challenges. From a technical standpoint, he needed ongoing computer support. He needed people to turn to, to help him overcome his own knowledge deficits. Unfortunately, he could not take time away from his business to attend classes (wherein the teacher might answer his questions) or find technical affiliates.

Deprivation : As IC lacked access to support for his day-to-day technical tasks, the micro-enterprise is assigned the code **Poor Organization**

From a non-technical standpoint, IC needed to be able to connect better with the English speaking community, as visitors to South Omaha were the primary source of his revenue. Unfortunately, again, he had no meaningful partnerships that could drive business his way. His problem was exacerbated by the high competition in the restaurant business in South Omaha; the limited number of visitors who made the drive were pulled in all directions. The table below summarizes IC's deprivations.

Table C6DS. EA Deprivations

Deprivations Coding Synopsis:
Knowledge Barriers and Staff Resistance
Administratively Inefficient
Non-technical Affiliations: Social Exclusion (from English speaking community)
Low Population Density
Lack of Top Management Engagement
Poor Infrastructure
Lack of Access to Loans
Poor Organization
Lack of English Fluency

IT Interventions (Role of the IT Therapist)

The IT therapists in this case sought first to address EA's access problem by providing IC with specifications for an affordable laptop. Similarly, they sought to specify a highly cost-effective Point of Sale solution that would help IC obtain better control of his costs (materials orders) and that would minimize ordering errors.

In the social realm, the therapists sought to encourage outsiders to locate and connect with EA via the creation of a basic informational website tied to Google Maps. On the human front, the IT therapists sought to increase IC's confidence using search engines so that he might begin to fill in some of his knowledge gaps independently from his son, and perform ordering activities by himself as well. IC did not explicitly mention 'improving his technical skills' as a goal, but the IT therapists felt that his doing so would be necessary for his achievement in other areas.

The table below describes the interventions performed, alongside the relationships that the researchers *perceived* as existing between a given intervention and the micro-entrepreneurs goals and deprivations.

Table C6I. EA Interventions

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Affordable Laptop recommendation (Access)	Improved Business Control	Poor Infrastructure
Internet search training	Improved Business Control	Knowledge Barriers and Staff Resistance, Lack of Top Management Engagement
Affordable Point of Sale Recommendation (Access)	Improved management of employees, resources, orders	Lack of Access to Loans, Knowledge Barriers and Staff Resistance, Administratively Inefficient
Creation of basic website (Access)	Improved Advertising and Marketing, Increased Sales	Social Exclusion (from English speaking community)
Training on maintenance of website (Use)	More efficient management of business, Improved	Lack of Top Management Engagement, Knowledge

	marketing of business	Barriers and Staff Resistance
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Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and support)**

Capabilities Enabled by Intervention

IC was interviewed twice about the effects of the IT interventions. The first interview was conducted approximately a month after the intervention had been completed. The second interview was conducted approximately six months after the intervention had been completed. The researchers also stopped by the EA restaurant a year after the intervention to see if IC had been able to purchase a POS system, or other helpful technologies.

In the first evaluation interview, IC indicated that the training and website creation aspects of the intervention were extremely helpful. He found web hosting fees affordable and was interested in web advertising. Unfortunately, IC's finances deteriorated during the course of the intervention to the extent that he found himself unable to afford the laptop or the point-of-sale systems that the students had researched for him (the total cost would have been approximately \$1500). The IT therapists involved were understandably disappointed, as they had devoted a great deal of time to finding a solution (a wireless cash register and wireless order/receipt printer) that would have required minimal maintenance and would have offered the possibility of tracking resource consumption, etc. IC suggested that he would like to purchase such a system as soon as he could afford it, and that the report the students had prepared for him had given him a good perspective on the range of solutions available in the market.

Capability : Based on IC's report that the point-of-sale report gave him a market perspective, that intervention is coded with **Learning and Labor Productivity**

During the second evaluation and follow-up, however, IC indicated that he had never, in fact, purchased the POS system or a laptop. He had retained all the informational materials on such, but did not feel that a purchase would be feasible given the tough economic environment he faced. IC was very apologetic about the fact that he had not altered EA's website in any appreciable way. He emphasized that he probably could if he needed to, but he did not see the need, as he felt that the students had 'done a good enough job.' By the time of the second evaluation, IC seemed to have forgotten about his goal of advertising on the web.

Deprivation [added] : Based on IC's description of not seeing a need to alter his website, he is assigned the code **Lack of Utilitarian Value**

IC did not feel that EA's web presence had resulted in tangibly increased store traffic, although he did indicate that the "Google Directions" feature had made it easier for customers to find EA.

Capability : Based on this description, it appears that as a result of the introduction of the Google Maps feature into the website, EA gained **Competitiveness and Access to New Markets**

IC felt that the website saved him money on advertising (he could run physically smaller print ads that referred to his website). He had previously spent approximately \$7000 per year on full and half page ads; he indicated that he was now spending approximately \$3500 per year. Here, the principle of suspicion is a consideration. IC was grateful for the help he had received and seemed ashamed that he had been unable to implement the Point of Sale system that the students had worked to specify. It is unlikely that IC would have had much money to spend on advertising to begin with, given the extent to which his business had been impacted by the recession. Therefore, this outcome is marked as not being growth related.

IC became more conscious of EA's brand as a result of his training: The students walked through examples with IC involving searching for EA's name on the Internet. In the course of this process, they uncovered a number of reviews of EA (on such sites as Yelp, and the New York Times) that IC had been completely unaware existed.

Capability : Based on this description, the search training is coded with an additional capability, **Brand Awareness**

The table below highlights the interventions performed alongside the capabilities enabled.

Table C6PES. Capabilities Enabled by Interventions, Summary

Intervention	Capability Enabled	Growth Related
Affordable Laptop Recommendation	None	N/A
Affordable Point of Sale Recommendation / Information	Learning and Labor Productivity	No
Creation of basic website	Competitiveness and Access to New Markets	No Evidence
Training on Maintenance of Website	None	No
Training on search techniques	Learning and Labor Productivity, Brand Awareness	No

Interestingly, IC claimed that post-intervention, he trained his wife to use Google. He indicated that she was now conducting personal-health and business related searches on her own as a consequence. It is unclear whether IC and his wife's access to additional informational resources will improve their business income, or health.

Overall, the intervention appears to have made EA somewhat more accessible to English speaking customers, and given IC greater access to information. It is far from clear whether or not the intervention has led IC to engage more with technology to grow his business, however. For instance, EA's website has remained static; its content is exactly the same as when

it was first created. Similarly, IC has not purchased Google or other advertising for the site as of May 2011.

Deprivations Remaining

This case (perhaps painfully) illustrates that access to economic resources vis-a-vis IT infrastructure is a prerequisite for IT use. While IC's technology skills improved to some degree over the course of the intervention, they remained weak and are not likely to be developed unless IC finds a source of ongoing technical support. Similarly, while the intervention lowered IC's 'perceived financial barrier to entry' with respect to certain technologies, it could not place these within easy reach.

IC remains heavily in debt, and technology would not seem to offer any solutions with regards to his trouble getting business loans. The deprivations remaining post-intervention are summarized below.

Table C6DR. Deprivations Remaining for EA

Deprivations Remaining:

IC did receive some training on Internet use, that partially addressed his lack of understanding related to this area of technology. Nonetheless, he still had fundamental knowledge gaps after the intervention. This indicates that the *Knowledge Barriers and Staff Resistance* indicated previously were, at best, partially addressed.

IC was unable to implement any of the recommendations for improving his business efficiencies, thus his business remained **Administratively Inefficient**

Non-technical Affiliations : Social Exclusion (from English speaking community) Although the website intervention gave EA better exposure, it did little to address EA's general lack of connectedness to the English-speaking community

EA's primary customers still need to travel long distances to reach his store, thus the code **Low Population Density** is retained

Although it conceivable that the intervention helped IC engage more with technology in his personal life, the static website suggests that the deprivation of **Lack of Top Management Engagement** is still applicable

IC still had only sporadic access to a working computer by the time of the second evaluation interview. Thus, the deprivation **Poor Infrastructure** remained

IC still had a **Lack of Access to Loans**, post-intervention

IC still had no one to turn to for daily technical assistance by the end of the intervention, thus the code **Poor Organization** is retained

IC did not see in value in editing his website. Therefore, the micro-enterprise was assigned the code **Lack of Utilitarian Value [added]**

Case 6 Analysis

IC started out with a technology plan involving the use of technology to improve his administrative efficiencies. His goal was to leverage technology to reduce overhead so that he could employ social agency with his wait-staff and customers. By spending more time managing and greeting, IC hoped to improve his business' service quality.

Additionally, making EA more efficient would have allowed it to capitalize on peak demand times better. On those occasions when EA did fill up, EA's processes slowed to a crawl, resulting in orders taking a long time to be recognized and customers staying longer than necessary waiting for receipts. By cutting down on the turnaround time for checks, IC would have been able to empty the restaurant faster, thus freeing up space for new customers.

Unfortunately, IC's plan failed due to his lack of income, and it (his plan) did not seem to extend to using technology in other ways. Although he received training that touched on the social aspects of the web, and which even involved showing IC reviews of his site on social websites such as Yelp, IC apparently clung to an asocial approach to technology. In his mind, once the website was built, its value had been captured. As of May 2011, the site has not been edited at all since its creation. The lack of utilitarian value he associated with the website (beyond its existence) perhaps contributed to his passive technology-related social agency. He did not attempt to affiliate with other businesses online, or establish a presence on any free

sites such as Facebook or Linked In (he was aware of both through eTeams and his son). Although he expressed an interest in web advertising, and initially claimed that the great benefit of the website involved advertising, he made no effort to follow-up by researching online advertising or even asking the IT therapists about how to accomplish this in the multiple post-intervention interactions he had with eTeams. IC's issues in relation to technology-- his lack of an IT Plan extending to the web, his passive technology-related social agency, and his asocial approach to his website, made it difficult for him to capitalize on the website for net income growth. His lack of agency on the technical side, especially given the high competition for Mexican restaurants in the South Omaha area, meant that IC's website was a blip.

IC's key non-technical deprivations were financial, and formed an interlocking set of negative cycles. For instance: Without adequate revenues, IC could not advertise in newspapers, and without advertising in newspapers, he could not increase his revenues. Similarly, without access to loans, IC could not replace his inefficient capital equipment that was creating high overhead (electric bills), and without lowering his overhead, IC could not convince banks to lend him money. The table below summarizes EA's key technology issues and non-technical deprivations.

Table C6KI. EA Key Issues

Key Technology Issues :

Lack of an IT Plan (extending to the web)

Asocial Approach to Technology

(Lack of) Technology-related Social Agency

Key Non-Technical Deprivations :

Lack of Income / Savings

Lack of Access to Loans

High Competition

Case 7 (Partial) : Interior Designer

DD is a one woman company owned by DK; it is a design business conducted primarily from a laptop in various coffee shops around Omaha. DK is an experienced designer, who has worked in the industry for twenty years. She held a managerial position at the paint company Sherwin-Williams, and indicated that she is particularly good at matching spaces with colors. DD serves both consumer and corporate clients throughout the Omaha area. DD has been in operation since 2007. DK indicated that she had experienced difficulty getting clients on a predictable basis, and that she had to supplement her income from DD with a part time job.

Stage of Growth : Based on DK's characterization, DD is able to acquire customers but has not yet earned much profit. The stage of growth assigned to the micro-enterprise is therefore **Survival**

Customer Dominance : Based on DK's indication that DD had a small number of customers, the micro-enterprise has **High Customer Dominance**

After changing briefly from the design to the banking industry in 2005, DK was laid off at the height of the real estate crisis of 2007. Wanting to return to her roots as a designer, she founded DD and began actively networking, although the Omaha market proved difficult. DK considers "do it yourself" stores like Lowes and Home Depot to be her primary competitors.

Micro-enterprise Goals

DK expressed her basic goal as wanting to make people happy. She said:

My kids are grown and I've always had dreams of specific things and now I'm going for them and design is part of who I am it's not something where I want to go be rich.. I love to help people make their space, whatever it be, a home a work environment, whatever, beautiful to them, because I think, without beauty from the world, we become depressed.. Would I love, carte blanche, to go some place and design? Yes. I could design a magazine quite well but that's not my goal and that's anywhere from the bottom up, I just like to help people, period.

DK's definition of success is "Helping people and making a living." She stated that with respect to her own business "It's not there yet, but it's getting there."

DK had specific technology goals in mind: she had been frustrated in her attempts to get more customers, and wanted to create a website that would showcase some of her design work. She also wanted to learn the program Photoshop better so that she could become more proficient at generating advertising and promotional materials.

Adapter/Innovator : Based on DK's description, she does not want to use technology to re-invent her business, but rather to incrementally improve it. Thus the micro-enterprise is an **Adapter**
Deprivation : Based on DK's indication that she had not been able to come to grips with Photoshop, the micro-enterprise is assigned the deprivation **Knowledge Barriers and Staff Resistance**

Micro-enterprise Means

DK's income comes from consulting fees earned by DD, as well as by small margins earned on furniture and accessories purchased for her designs. She also works a part time job. Her IT equipment consists of a laptop with Dreamweaver, AutoCad, the Adobe Creative Suite 5, and Microsoft Office software installed on it. DK uses outlook for email and a paper calendar for calendaring. She uses QuickBooks for accounting. DK has Cable Internet. DD has no physical location, although she has purchased a domain name. Materials for designs are ordered as needed online. DK has no legal representation, although she had a lawyer draft up the contract she uses for her design work. DK has an accountant do her taxes. Her advertising is word of mouth, and via the distribution of business cards at area shops.

IT Adoption : Based on her use not only of standard technologies but also the domain-specific program AutoCad, the micro-enterprise is characterized as having **Above Average IT Adoption**

Goods

- Laptop
- Domain name

Color Charts, Design Reference Books, etc.

Services

Accounting
Heating, electricity, water, phone
Cable Internet (Home)

Non-technical Affiliations

DK has taken various classes at Metropolitan Community College, and earned a specialty diploma in entrepreneurship. She mentioned that she had formed professional relationships with faculty members at the community college, and would draw on these as needed. DK has also recently joined the Small Business Association of the Midlands, and works with the PTAC office at NBDC. DK belongs to the Better Business Bureau, a design alliance called ASID, and a few other trade organizations. DK holds a positive opinion of local community programs for small businesses, and networks actively, although she still finds this challenging. In her own words:

I just recently started with them [the PTAC Office], and so far, absolutely, yes, I'm looking forward to the growth possibility there, the potential that is there is exciting, actually, because in this, when you're coming up in a .. Omaha is a relatively small community and unless you are.. yes I was known as the paint lady at Sherwin Williams everybody came to me forever, but then when you're just a designer on your own if you can't afford a lot of the large advertising budgets that are required to get your picture and face in front of everybody. You aren't seen, so you have network network network, because if people don't see you it's out of sight out of mind. And so that's what I've kind of been running into, and then it's also like, 'Who are you? Have you been around a long time?' but until somebody really starts opening their doors you are stuck

Affiliations : Based on DK's weak ties to a variety of networking groups, and strong ties to the community college, the micro-enterprise is assigned the codes **Non-technical Affiliations: Weak ties (Business networking groups, trade associations), Non-technical Affiliation: Strong ties (Metropolitan Community College)**
Social Agency : As DK both attended networking events and cultivated professional contacts, her approach seems to correspond to **Discovering Opportunities (Non-technical Affiliates)** and **Securing Resources (Non-technical Affiliates)**. DK's joining of reputable trade organizations is indicative of **Gaining Legitimacy (Non-Technical Affiliates)**

Technical Affiliations

DK has never employed a technical contractor, or a technical service provider like Geek Squad. Her primary technical resources are her three sons, who live in Omaha. Describing the relationship, DK said:

[I always rely on] my son [laughter] always, always. I can kind of figure some things out and I can get to a certain point but then I become afraid and especially when it comes to some of the security settings and everything like that so once I get the basics and everything done.. then I can experiment later if I need to and adjust this or adjust that but to actually set it up.. eh, I have my sons do it. <laughter> One is 30 and one is 25, almost 26, and the oldest one actually builds computers.

Essentially, DK's sons assist her with troubleshooting and initial configuration. Through subsequent conversations, it became clear, however, that DK's sons were not providing support from day to day.

Technical Affiliation: Based on this description, the micro-enterprise is assigned the code **Strong tie (Sons, Configuration & Configuration Problems only)**
Deprivation : Based on DK's indication that she was unwilling to configure her computer and software independently, the micro-enterprise is assigned the code **Lack of Top Management Engagement**
Deprivation : Based on the fact that DK did not have day-to-day support for her technical needs, **Poor Organization** is coded

Business and Financial Environment

Asked about the regulatory environment, DD said "regulated fine." DK feels that the business environment in Omaha has not caught up with a paradigm on which she bases her services, called Universal Design, which refers to the normative goal of making all spaces accessible to all people, including the elderly and the disabled. DK has a positive opinion of the local banking system, but does not feel like she has been offered a reasonable merchant payment processing solution. She stated:

[Right now] I work through ---- Bank. I've tried...usually, I've tried a couple different ones to see how they work on a personal level, how they are with their people, and then move, and I've found that right now ----- is a great fit for me, and different locations and different people play a part in that as well. So the people I've been working with are [out on] ---th and ---, and they've been great to work with, just fabulous, so I really am pleased with that. I set up merchant processing services through -----, with a person that I was connected with through the bank, which I wound up being disappointed in that avenue, paying out the wazoo for set-up fees, and things that I wasn't really 100% understanding, so I was kind of trusting a little bit more than I probably should have, but if you don't understand it, it's really hard [to do anything else].

DK had not taken out any loans for her business, and indicated that she never took out loans for design jobs, requiring all costs to be paid up front. She stated that marketing was her most challenging business task. Asked about demand for her services, DK indicated that the market was extremely competitive and that customers were unwilling to pay even modest amounts for design services. DK felt that it was easier for larger businesses to operate in Omaha because "easier for them to get customers.. [they] have a brick and mortar space that people can go into."

Business Environment : Based on the fact that DK has many direct competitors, and or the ease of customer switching and substitution of products, the business environment for this micro-enterprise is coded as **High Competition**

Business Environment : As DK's services require regular research but are not primarily informational, the micro-enterprise's business environment is assigned the code **Average Information Intensity**

Technical Experience

DK has very solid technical skills. She is proactive in searching online for design trends, and items that she might use in her designs. She has taken online and offline technical classes on Office Productivity, Photoshop and AutoCad (she is a moderately strong AutoCad user). Despite her skills, DK sometimes feels overwhelmed by the available choices. She stated:

I get bombarded with people constantly trying to sell me whatever product or service. So I'm not sure...it's worth it to get out there, it's worth it to get seen that way, it's worth it

for communication and research. Is it worth that way? Yes. Is it worth it for me on a cost-effective basis? [skeptical noises] A lot of times it's not, and so I don't go down that road. There are so many different things...I know that...time...there are so many things free through Google, AdWords and other things... I would have to say that the Entrepreneurship course through Metro, for me, gave me a lot of useful information. But there's almost too much useful information...and again...focus...where do I go first?

IS Experience : Due to the fact that DK had attended multiple technical classes and used sophisticated domain specific application (AutoCad) she is assigned the code **High IS Experience**

DK had several bad experiences with technology in relation to identity theft, and thus has become somewhat conservative when purchasing or putting personal information online. She expressed that it was "[hard to know] what's real and what's not."

Asked about whether technology had played a critical role in her business thus far, DK stated:

Not really, most of mine has just been for the design aspect just networking [in the physical world] and personal relationship development that sort of thing, I have people often ask 'do you have a website?' so they can look at things I've done.. I set up a Facebook for [DD] and I haven't followed very far through with that, I purchased a domain name for it and haven't done anything with that .. I have the domain name for it and have done nothing with that so I'm really like, I've started and I just have too many irons in the fire to really focus on one thing in particular

Technical Agency : The researcher found DK's profile on Facebook but could not locate a page for her business, either associated with her name or visible independently. Therefore, DK is given the code **Asocial (Productivity)** approach regarding her use of business-related technology
Technical Agency (Value Added/Cost Reduction) : Dawn did not express any concern about the cost of hosting her website. She had also previously purchased two very expensive software packages for design, and was focused on using these to enhance her presentations to clients. Based on these facts, the micro-enterprise approach is coded as **Value Added**

Micro-enterprise Business Processes

DK does not have a well defined target market. She stated:

No I know from feasibility studies and from that side of things typically the person who would be more likely to hire me would be between 35 and 60 someone that's had a job for a little while more than likely and going to be looking to fix things for this or for that or the other thing.

Respecting her business decision-making process, she stated:

Well, what I find is that a lot of people just tend to jump in and not really know what they're getting into. I usually do a lot of research first. I try to figure out how to start at the base, because I want to learn from A to Z, I definitely want to learn the process; whether I learn it to become a specialist in it or not, that's not my goal. I just want to understand why and what I'm doing. Do I want to become an accountant, no, but I want to know what they're doing, so they're not taking advantage. So...on occasion, I'll just jump just because it feels right, and the timing is right, and sometimes if you don't, you're going to miss an opportunity. So I would say it's an [educated guess], it just depends on the situation.

Technology Plan

DK stated that she did not have an overall technology plan, but that she did research each technology decision she made. Particularly, she would make sure that she witnessed product demos and consulted her friends before purchasing anything. DK stated that she felt part of her advantage in networking would be connecting through non-technological means:

It's kind of a Catch 22 ... I mean you go from everything used to be more of your relationship then it turns into everything went to computers and became impersonal and now it's going back to we need to develop relationships more that personal contact again, while utilizing technology because I think too many people have lost touch with the person to person, how important that is

Although she did not have a detailed technology 'plan,' DK had a good understanding of both her business and technology concepts. She could connect the two with facility.

<p>Technical Agency : Based on Dawn's ease in expressing the applicability of technology to her business, the micro-enterprise is assigned the code IT Plan</p>

Micro-enterprise Achieved Functionings

DK was skilled at running her business using standard and non-standard technologies, although it was in an early stage of growth. Socially speaking, DK has achieved fairly good success in connecting with other businesses and the community, though she has not cultivated any technical partners. The table below summarizes DK's achieved functionings.

Table C7AF. DD Achieved Functionings

<p><u>Achieved Functionings Coding Synopsis:</u> Stage of Growth : Survival Adapter/Innovator : Adapter IT Adoption : Above Average IT Adoption IS Experience : High IS Experience</p>
<p><u>Agency Coding Synopsis:</u> Technical Agency : IT Plan Technical Agency (Value Added/Cost Reduction) : Value Added Technical Agency : Asocial (Productivity only) approach Social Agency : Discovering Opportunities (Non-technical Affiliates), Securing Resources (Non-technical Affiliates), Gaining Legitimacy (Non-Technical Affiliates)</p>
<p><u>Environmental Conditions Coding Synopsis:</u> Customer Dominance : High Customer Dominance Business Environment : High Competition, Average Information Intensity Technical Affiliation: Strong tie (Sons, Configuration & Configuration Problems only) Non-technical Affiliations: Weak ties (Business networking groups, trade associations), Strong ties (Metropolitan Community College)</p>

Micro-enterprise Deprivations

DK's deprivations were primarily social and human in nature. DK was doing a lot of social networking, but she had not focused on making technical contacts. As a result, she had no one to reach out to for day-to-day support questions. DK compensated for this to some degree by using the Internet as an informational resource. From a human standpoint, DK lacked time to learn an important technology for her business, Adobe Photoshop. She was skeptical of the value of many social networking platforms. She did not seem interested in configuring her computer or software, instead delegating this task to her sons. In the middle of the intervention,

DK developed a health issue that significantly impaired her ability to use a keyboard or mouse.

DK's deprivations are summarized in the table below.

Table C7DS. DD Deprivations

<p><u>Deprivations Coding Synopsis:</u> Knowledge Barriers and Staff Resistance Lack of Top Management Engagement Poor Organization Health Issues</p>
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IT Interventions (Role of the IT Therapist)

DK's primary technology related goal was to establish a web presence for her business. Secondly, she wished to learn aspects of the program Adobe Photoshop. The IT therapists in the case viewed DK's primary deprivation as human. They believed that offering DK training about web concepts would be helpful. In addition to setting up the site, there would be a focus on step-by-step instruction on how to edit it, with practice exercises, to ensure that DK had a solid foundation for editing in the future. The second portion of the intervention was intended to be a walkthrough of Photoshop, targeted to explore features DK had specifically expressed an interest in. DK had indicated that she had not found the class she had taken in Photoshop at the community college to be very helpful. The reason she gave was that the material was too general and the instructor moved too quickly. The Photoshop training was therefore designed with these concerns in mind. The table below describes the intervention, and the goals and deprivations addressed.

Table C7I. Interventions

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Training on web concepts	Improved conceptual knowledge related to website	Knowledge Barriers and Staff Resistance
Creation of a basic website with a gallery	Web presence, Improved marketing of business	Knowledge Barriers and Staff Resistance
Training on website	Improved conceptual	Knowledge Barriers and Staff

maintenance	knowledge related to website	Resistance, Lack of Top Management Engagement
Training on Adobe Photoshop	Desire to market business more attractively	Knowledge Barriers and Staff Resistance Lack of Top Management Engagement

Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and support)**

Capabilities Enabled by Intervention

The evaluation for this partial case was conducted approximately one week after the main portion of the website had been developed and DK had received some training on how to use the site. Prior to the website's being developed, DK had also undergone training from the researcher on the use of Photoshop to accomplish various tasks. DK offered this feedback on the intervention:

The website was a must. I don't see how anyone can have a business nowadays and not have a website. I don't see how it's possible. So that's just a given. And I can't even tell you the value of that. For me to learn that process at least now I have a baseline, it's there, I can change what I need to change and learn and grow. But at least the basics are there. And the Photoshop part of it, again, what you taught me in a couple of settings, more valuable than the class I had taken already, and it was, what I had received from the class prior was nothing that was going to help me in my business. And so what you did .. I bought the books that you recommended, so I look forward to when I'm feeling better [referencing her health issues] working on all of this.. For me it's opened many doors that I didn't have available.. I am thrilled.

From the quote, it is clearly evident that DK viewed having a website as a prerequisite for being competitive in the interior design space. It is also evident that DK learned enough that she felt she could be productive in editing her site. DK went on to elaborate, when asked about the phrase 'opened doors,' that she meant that she felt that, among other things, with her enhanced conceptual understanding of the web, she would now be able to consume website related informational resources on her own.

Capabilities : Based on the above description, the micro-enterprise is coded with the capabilities **Competitiveness and Access to New Markets, Access to Information, Knowledge, and Expertise, Learning and Labor Productivity**

The researcher asked DK a number of different questions about the role she saw the website playing for her business in the future. Asked about whether she thought people would simply find her website, or whether she would reach out to people using her website, DK said:

Both, because many more people now just go and Google decorators or designers and whatever pops up is who they're gonna go to, the top three in most cases, more than likely.. [Having a web presence means also that] It's just easier to share some work, give them an idea of the work I can do.. without actually having to even meet

Asked about whether she felt the website gave her business legitimacy, DK said that the website per se, did not, but being able to display the Better Business Bureau logo as well as trade association logos on her site would confer legitimacy. Asked about whether she felt that she could use the website to build a community around her business, DK was highly skeptical. For instance, respecting the idea of distributing an email newsletter, DK indicated:

I have trouble being bombarded by emails. And like 1%... I might literally open and look, if I don't know who it is..to even ask friends.. I don't want to do that.. it's bothersome. If somebody's in the market for a designer, they are going to look for you

DK was also skeptical of blogging. She said:

If it was something that I was writing and it was getting me towards something, a specific goal that would be beneficial a specific way - I don't see how that would be possible for me? Unless you could tell me something different. But right now I don't see it.

DK indicated that had not become part of any social review sites like Yelp, but she would consider the possibility. Asked about whether she had considered partnering with any other businesses for advertising or in other ways, DK said: "There are so many different opportunities [for partnership] that are open.. I haven't actually traveled down that road yet."

Asked if she would consider becoming part of a social review site like Yelp, DK indicated that she had not thought of that, but that she would be open to the possibility. The table below summarizes the capabilities enabled by the interventions. Items in the growth related column are marked "N/A" due to the fact that not enough time has passed for growth-related outcomes to be adequately assessed.

Table C7PES. Capabilities Enabled by Interventions, Summary

IT Intervention	Capabilities Enabled	Growth Related
Training on web concepts	Improved conceptual knowledge related to website	N/A
Creation of a basic website with a gallery	Web presence, Improved marketing of business	N/A
Training on website maintenance	Improved conceptual knowledge related to website	N/A
Training on Adobe Photoshop	Desire to market business more attractively	N/A

Deprivations Remaining

DK faced challenges that were primarily human and social in nature. It is difficult to assess the extent to which her human knowledge and engagement deprivations remained due to the fact that her health issues had prevented her from practicing the Photoshop techniques she had been taught, and/or editing her website. DK certainly seemed enthusiastic about both interventions during the course of the interview. The intervention could not solve DK's issue with respect to day-to-day technical support. The table below summarizes the deprivations remaining.

Table C7DR. Deprivations Remaining for DD

<p>Deprivations Remaining: <i>Knowledge Barriers and Staff Resistance (addressed?)</i> <i>Lack of Top Management Engagement (partially addressed?)</i> Poor Organization Health Issues</p>

Case 7 Analysis

DK's business, DD, was surviving. DK was not in apparent jeopardy of having to give up the business, as she held a part-time job that stabilized her income. DK had exhibited strong social agency in seeking out non-technical affiliations both for the purpose of finding opportunities, and for establishing her company's legitimacy. She had a strong technical affiliation with her sons that could at least offer her support in the event that she faced technical challenges.

DK's technical approach, prior to the intervention, had primarily been asocial. In terms of her technology-related social agency, she had not sought out technical affiliates other than eTeams. DK has an IT Plan, but it is unclear whether part of that plan will involve finding technical affiliates or connecting her website into social networks in the future. She expressed very mixed feelings about electronic modes of communication; she did not see the utility in blogging, or sending out an electronic newsletter, for example.

If DK is able to use the website socially, it will probably be in a social acquainted fashion, wherein she meets someone, and directs them to the website so that they can quickly get a sense of her work portfolio and her design style. In this sense, the website may improve DK's service quality and her ability to secure non-technical opportunities in the future. The table below summarizes the key technical issues and non-technical deprivations associated with the case.

C7KI. DD Key Issues

Key Technology Issues :

Asocial Approach to Technology

(Lack of) Technology-related Social Agency

Key Non-Technical Deprivations :

Health Issues

Case 8 (Partial): Green Lighting

WR's RGE business specializes in the sales of efficient LED lighting for outdoor use. It is run by RGR and his part-time junior partner, out of RGR's home office. Interestingly, WR's business does not particularly address the Omaha market. Rather, WR considers RGR to be an international concern. To market his business, WR has created a website and become part of a paid online social network that will be referred to as TN. WR has used the social networking website to forge connections with Chinese LED manufacturers. He has also used it to make bids for various projects that are going on in such far flung places as Dubai. WR has made very little income from his business so far (only a few orders have gone through), but he has great ambitions.

Stage of Growth : Based on it being unclear as to whether his business can get customers, the RGE business is assigned the code **Existence**

Customer Dominance : Based on RGE having few customers, the micro-enterprise is assigned the code **High Customer Dominance**

Adapter/Innovator : AS RGE's business approach (targeting the international market, sourcing globally) is highly atypical for micro-enterprises, this micro-enterprise is coded as an **Innovator**

Prior to starting this business and working on it full time, WR was employed as a manager at various food concerns within Omaha. Before that, WR served in the Army and the Navy. WR is a service-disabled vet, and receives benefits for injuries incurred during service. He experiences a variety of health issues on a daily basis. WR and his junior partner met by chance and decided to found the business because they viewed Green Energy as a large emerging market. Now, WR works almost continuously trying to chase down leads, and validate and recruit customers.

Deprivation : Based on their significant impact on the founder's ability to manage, the micro-

entrepreneur is assigned the deprivation **Health Issues**

Micro-enterprise Goals

WR was unhappy with the performance of his business. He hoped to radically expand, to make sales ten to twenty times what he has previously made. All of his goals related to business expansion and revenue generation. WR stated in the initial screening interview that he wanted his business to be the "Wal-Mart of Green Energy."

WR describes success as making millions of dollars and becoming famous within the community. His personal philosophy is based on persistence. He stated:

My personal philosophy would be to um, to be honest, always have integrity but be tenacious, and always drive forward. Always keep – always keep your short term goals in line and make sure they line up and co-exist with your long-term goals. Don't be sporadic but keep up.

In terms of his technology goals, WR believed that technology could help him address two factors he had identified as being related to his limited success. The first factor he identified was that his website was not multi-lingual. He is targeting an international market, but the site is in English. WR wanted to have his site 'automatically translated' into other languages. The second factor WR identified was that his 'pitches' to potential clients did not look professional enough. He needed to impress his customers, and he did not have the graphical skill to create artistic renderings of LED lights in different environments. WR believed that technology could help him either make better presentations, or offer tools on his website that would help customers make their own assessment of whether LED lighting would be appropriate for their projects.

Micro-enterprise Means

WR derives his profits from markups on orders for LED lighting equipment. He keeps a certain number of product samples around, but does not otherwise carry any inventory. His IT equipment consists of a laptop and desktop, an Internet enabled phone, a digital video camera, and a large screen television, to which he can connect his computers. WR uses Microsoft Office products, as well as Skype (for contacting potential customers), and the TN social network online. WR does not employ an accountant, or a lawyer. WR's home has phone service, running water, heating and cooling, and electric service, as well as Cable Internet.

IT Adoption : Due to WR's use of a domain specific Internet portal in addition to his use of typical Office Productivity applications, the micro-enterprise is assigned the code **Above Average IT Adoption**

Goods

- Website
- Product samples
- Digital video camera
- Desktop Computer
- Laptop Computer
- Large Screen Television

Services

- TN Social Network (Includes web hosting)
- Heating, electricity, water, phone
- Cable Internet

Non-technical Affiliations

WR had recently become affiliated with the PTAC office of NBDC at the time of the needs assessment interview. Otherwise, he had no affiliations with other businesses in the Omaha area. As stated, he employs neither an accountant nor a lawyer. WR claimed to have formed strong partnerships with Chinese manufacturing interests. He had cultivated these partnerships through an online social networking site, and had made the 'acquaintance' of various participants on this site through Skype. WR made much of his 'constant' use of

technology. He indicated that he connected his laptop to a big screen TV for Internet surfing and Skype meetings. Overall, WR's characterizations of his technical prowess seemed somewhat grandiose.

Deprivation : Based on this description, RGE is assigned the code **Non-technical Affiliations: Social Exclusion (from Omaha business community)**

Non-technical Affiliations : Based on his statements, the micro-enterprise is assigned the codes **Weak tie (NBDC), Strong ties (Chinese Manufacturing)**

Social Agency : AS WR was actively pursuing social affiliations and partnering opportunities through all means available to him, his style appears to correspond to **Securing Resources (Non-Technical Affiliates), Discovering Opportunities (Non-technical Affiliates)** and **Gaining Legitimacy (Non-technical Affiliates)**

Technical Agency : WR's use of technology corresponds to both the **Social Unacquainted (Online chat forums)** approach and the **Social Acquainted (Email & Skype)** approach

Deprivation : WR seemed to be very concerned with the use of technology for appearance's sake, even if it was impractical. The micro-entrepreneur is thus assigned the deprivation **The Symbolic Value of Information Technology**

Technical Agency (Value Added/Cost Reduction) : The TN network had an extremely expensive monthly membership fee that represented WR's main cost. WR's focus however was on the **Value Added** by the partnerships he felt he could forge through his use of the site.

Technical Affiliations

WR indicated that he had taken a variety of technical classes at Creighton, Metro, and Bellevue College. He stated that he had enjoyed these classes and benefited from them. He also indicated that his junior partner was technically savvy. He had never hired anyone for technical assistance. WR indicated that outside of the TN social network, he was also an active member of Facebook and LinkedIn; he said these services were somewhat useful for him in finding contacts. Mostly, however, he received his leads from TN. At first, it seemed like WR had a lot of personal IS experience. As the discussion progressed, it became clear that he was unable to perform certain basic tasks like editing his website in the TN framework. WR indicated at one point during the conversation that he relied on his assistant for these tasks. At another point, he indicated that his assistant was often busy and did not have time to provide reliable aid. The

inconsistencies in WR's statements lowered the estimation of his IS experience, and made it clear that he suffered from certain knowledge deprivations.

IS Experience : Due to it being unclear about whether WR could actually use basic features of the TN platform, his experience was downgraded to **Moderate IS Experience** from an original grading of *High IS Experience*

Deprivation : Based on his struggles with the TN platform, WR is assigned the deprivation **Knowledge Barriers and Staff Resistance**

Deprivation : Based on the inconsistent availability of WR's assistant (who offered IT support services), the micro-enterprise is assigned the code **Poor Organization**

Technical Affiliation: To acknowledge the role of the business partner in at least providing occasional assistance, the code **Weak tie (business partner, occasional assistance)** is assigned

Business and Financial Environment

WR had little knowledge of the Omaha business environment, as he had primarily targeted international clients. He hoped to be able to access city contracts through his work with PTAC, but had not yet accessed this potential revenue stream. His business was self-funded. He had personal loans related to property ownership that were eating away at his savings.

WR had a great degree of hesitancy in regard to the process of obtaining and vetting customers and partners over the Internet. He described a variety of schemes by which he would vet potential contacts, including some that sounded ethically questionable. He indicated that on the TN network he received an high volume of spam and fake inquiries from competitors.

Commenting on such problems with communication, he stated:

They're trying and sometimes they'll send, like they'll email me a fake inquiry to try to get a price from me. But what I do is I ask them, well exactly what are you looking for; because my products are made specifically for...you know, for each customers. It's a difference, you know, depending how many watts you want, this, that, and the other. Then I'll see what kind of response I get back. See. And then-then once I find out they're really a customer, then I'll send them a, you know, idea of price. And then tell them hey, I can get a lower price if you order so many, you know.

Deprivation : Based on WR's statements about his financial difficulties, the he is assigned the

deprivation **Lack of Savings**

Business Environment : WR's time was occupied almost exclusively with information transfer activities. Thus, the micro-enterprise business environment is coded as **High Information Intensity**

Technical Experience

WR seemed to have a decent mastery of most productivity and online networking related technologies. In addition to having taught himself a variety of skills, he had also successfully undertaken technical coursework at several local institutions. He had become very adept at finding relevant partners through keyword searching on the TN website.

WR stated that technology had been absolutely critical to the limited success that his business had experienced, as his entire business model depended on addressing foreign markets. He indicated that he simply did not have the time to learn enough about the web or CAD software to address his current technology challenges, however.

Technical Agency : WR's routine use of basic productivity software suggests an **Asocial (Productivity)** approach

Micro-enterprise Business Processes

WR seemed to have a good grasp of the basic business processes associated with recruiting a customer and attempting to pitch a product, but it was not clear that he had developed processes for follow-up, as he had not yet had many sales. Additionally, his methods for customer targeting were, at best, ad hoc and scattered. WR was aware that he needed to get some 'anchor' customers to secure a baseline revenue stream, but he had not been able to do so. WR described a chaotic schedule, involving him being contacted via email at all hours of the night, and dealing with a variety of crises. WR often took a lot of time to respond to basic email inquiries from the researcher and another team member, and frequently canceled meetings.

Deprivation : WR's behavior and stories suggest that his business is **Administratively Inefficient**

Technology Plan

WR had a clear plan about how he wanted to improve his web presence and his sales pitches using technology. He understood the significance of the different technologies that he used in his business.

Technical Agency : Although he faced some knowledge barriers, WR had clear business reasons for using each of the technologies that he did. Thus, the micro-enterprise is assigned the code **IT Plan**

Micro-enterprise Achieved Functionings

WR was an innovator who had created a unique business model and was attempting to implement it. He had a good grasp of basic technologies and the ways that these connected to his business, a decent grasp of a domain-specific platform, and seemed to be working very hard to make his business successful by actively using an online social network and communicating constantly via email with affiliates he found on the site. WR's achieved functionings are summarized below:

Table C8AF. RGE Achieved Functionings

Achieved Functionings Coding Synopsis:

Stage of Growth : Existence

Adapter/Innovator : Innovator

IT Adoption : Above Average IT Adoption

IS Experience : Moderate IS Experience

Agency Coding Synopsis:

Technical Agency : IT Plan

Technical Agency (Value Added/Cost Reduction) : Value Added

Technical Agency : A-social (Productivity), Social Unacquainted (Online chat forums), Social Acquainted (Email & Skype)

Social Agency : Securing Resources (Non-Technical Affiliates), Discovering Opportunities (Non-technical Affiliates) and Gaining Legitimacy (Non-technical Affiliates)

Environmental Conditions Coding Synopsis:

Customer Dominance : High Customer Dominance

Business Environment : High Information Intensity

Technical Affiliation: Weak tie (business partner, occasional assistance)

Non-technical Affiliations : Weak tie (NBDC), Strong ties (Chinese Manufacturing)
--

Micro-enterprise Deprivations

WR faced economic, social, and human challenges. With his savings rapidly being eroded, it was unclear whether or not RGE had a viable business model. Socially speaking, WR was facing challenges due to his exclusive use of technology for network building; the reality was simply that becoming 'socially acquainted' over Skype did not engender enough trust upon which to base high dollar business deals. WR was not connected to other businesses in Omaha, to partner organizations, or to technical exemplars. From a human standpoint, WR had some knowledge barriers related to basic functions of his e-commerce website. Seemingly, his ambition, and his desire to appear technologically sophisticated outstripped his ability to use technology productively. WR also had a variety of health concerns that put him under a great deal of pressure. WR's deprivations are summarized below.

Table C8DS. RGE Deprivations

<u>Deprivations Coding Synopsis:</u>

Health Issues

Non-technical Affiliations: Social Exclusion (from Omaha business community)

The Symbolic Value of Information Technology

Knowledge Barriers and Staff Resistance
--

Poor Organization

Lack of Savings

Administratively Inefficient

IT Interventions (Role of the IT Therapist)

WR's main goal involved making his website more accessible to potential clients. First, he desired to make the website multi-lingual. This would involve placing a dropdown box on the landing page of the site that would allow the client to choose a language option. Second, he wanted to offer tools on his website to help clients calculate performance characteristics and aesthetics of LEDs under different conditions. WR had a tertiary goal of learning AutoCad so that

he could make more impressive renderings for digital pitch books and other presentations that could be offered for download.

Based on WR's description of his needs, it was determined that WR would be well served, first of all, by some hands-on training. WR agreed that he needed to learn to edit his website independently, as it was one of the primary means for him to communicate about sales, new product lines, etc. with potential clients. To address WR's other goals, the researcher and a student located a free tool that could provide integrated automatic site translation, and offered to try and help WR implement this. A JavaScript widget was found, that could dynamically calculate metrics related to the usage of LED lights under various environmental conditions. WR agreed to give the researchers passwords to his website, and to schedule additional meetings for training, and the validation of performance related to the widget to be incorporated into his website. It was determined that, given WR's financial situation, it would probably be infeasible for him to purchase a copy of AutoCad. The proposed interventions are indicated in the table below:

Table C8I. RGE Interventions

IT Intervention	Goal(s) Addressed	Deprivation(s) Addressed
Training on site editing and maintenance	Improved conceptual knowledge, ability to perform independently	Knowledge Barriers and Staff Resistance, Poor Organization
Alteration of site to include automatic language translation	Improved marketing of business	Knowledge Barriers and Staff Resistance
Integration of JavaScript calculator into site	Improved marketing of business	Knowledge Barriers and Staff Resistance

Technical Affiliation: To indicate the role of eTeams at this point, the micro-enterprise is assigned the code **Strong tie (eTeams, time limited development and support)**

Capabilities (Not) Enabled

Unfortunately, the case ended a couple of months after the interventions were proposed. After missing several meetings, WR indicated to the researchers that he had been forced to take on a full time job because RGE was not bringing in sufficient income. This job involved a high workload and irregular hours, making it very difficult for him to schedule to meet.

Throughout, WR never sent the researchers the passwords to access his website, so that the JavaScript calculator and site translation tool could be integrated and tested. As of this writing, WR's workplace had been flooded due to high rains, and he was working overtime with the other employees to mitigate the damage. He indicated that it would be a very long time before he would be able to address RGE again. Attempts will be made to contact WR and complete the work, but for the purposes of this research, the case is considered closed.

Case 8 Analysis

This case is quite interesting because it features a micro-entrepreneur using electronic tools as part of a program of extremely high social agency (social acquainted and unacquainted approach). If such tools are effective at helping micro-entrepreneurs achieve growth outcomes, why was WR unable to succeed? It seems there are several factors to consider.

The first factor to consider is that while WR exhibited extremely high social agency, he exhibited very little technology-related social agency. Considering that he was paying extremely large amounts of money to an online social network, and that this network offered free support, it is more than a bit surprising that WR did not avail himself of said support to, for instance, learn how to edit his own website. Instead, WR seemed content to delegate this task to a technical affiliate (his junior-partner), who was by his own account, uninvolved.

The second factor to consider is that WR was very administratively inefficient, and personally inconsistent (at least in his approach to eTeams). It seems unlikely, given that he was bidding on high dollar LED lighting deals, that such inconsistency would have gone unnoticed by potential clients.

The third factor to consider is that it is possible WR was exaggerating his social agency in order to appear more competent. He was, in fact, facing a variety of health issues and a deteriorating financial situation. It is possible, per the principle of suspicion, that that he claimed to be more active than he actually was, in the initial interview, to increase his chances of receiving the assistance that he obviously needed. Of course, this third factor is simply speculative. Unless WR begins work with eTeams again in the future, the truth of the situation will remain unclear. The table below indicates the key technology issues and non-technical deprivations at work in WR's situation.

Table C8KI. RGE Key Issues

<p><u>Key Technology Issues :</u> Knowledge Barriers and Staff Resistance (Lack of) Technology-related Social Agency The Symbolic Value of Information Technology</p> <p><u>Key Non-Technical Deprivations :</u> Health Issues Lack of Savings Administratively Inefficient</p>

Non-Intervention Case 1: BM Phone Store

The BM phone and computer repair store sits in the heart of North Omaha, an area that has traditionally faced significant economic challenges. Its facade is inviting, with neon lights and well-organized transparent displays positioned near the windows, but the glass is reinforced and the door is in a default locked state, requiring the manager to buzz in customers. The BM store

sells prepaid mobile phones, and repairs phones and computers. The owner is something of a local tech guru, and is proud of the daily instructions he offers his customers on topics ranging from data security to the proper way to preserve a phone that has recently been immersed in water. The BM phone store is one of two locations (the other location also sells clothing and gaming equipment). This branch recently opened; the first location opened in approximately 2003.

ES, the owner of the store, has overcome significant adversity. Having been convicted of a crime and imprisoned in his adolescence, he turned his life around after he got out of jail. He began his career working at, and then managing, retail stores like Blockbuster. After some time in various middle management positions he was hired to work at a pharmacy, where he was successively promoted until he reached the level of Vice President. After a disagreement with his professional mentor at the pharmacy, ES decided to invest his savings into turning what had been a sideline for him (repairing phones and computers for friends) into a full time business. Times were tough at first, and he supplemented his income by renting his store's premises out to board gamers and small parties, but as ES made connections within his community the store grew to become a local favorite and has been consistently profitable. ES hired one employee about five years ago, and recently hired another. He splits his time between the two locations, often working fourteen hour days.

Micro-enterprise Goals

ES would like to turn his business into a franchise; he considered this feasible based on the business' level of success. He would like to hire more employees and spend more of his time thinking strategically and managing others. He commented:

I'm hoping that soon that it [gets] big enough and large enough... [that] I wouldn't mind hav[ing] enough locations that um, when people think of [parent company of BM store] that they...they know exactly what it is, that it's like saying Target in Omaha or saying [name of chain] pharmacy... I like that. I also want the business to be large enough that it can take care of me um, into the future. You know? So I don't have to be here all the time.

ES defined success not only in financial terms but also in the sense of giving back to the community. He stated that he would like to help others become entrepreneurs through mentoring and eventually, when he becomes successful enough, through lectures on entrepreneurship. Throughout the conversation, ES brought up examples of situations wherein he had helped others to achieve their goals.

ES also indicated that he would like to streamline his inventory management using technology; he would like to make recently sourced products immediately available on his website, for instance. He described his plan for accomplishing this technically, and indicated that he was researching providers who might be able to implement for him as he personally did not have the time to code it.

<p>Stage of Growth : Based on ES' statements about consistent profits, which he wishes to reinvest, the stage of growth assigned to this micro-enterprise is Success</p> <p>Customer Dominance : Based on ES having a large number of customers, the micro-enterprise is assigned the code Low Customer Dominance</p>

Micro-enterprise Means

ES's net income comes from profits earned by the BM store's two locations. As mentioned, ES sells both products and services. The products are mobile phones. The services include prepaid plans for the phones, phone repair, computer repair, and computer troubleshooting. ES's IT equipment consists of computerized cash registers, Internet-connected video surveillance cameras, two desktop computers (one at each store) with Quick Books and Microsoft Office products installed, and various electronic parts and test kits for computers and

mobile phones. Both of the BM store's locations have access to high speed Internet (at both locations). BM built his own e-commerce portal that allows customers to pay their bills online. He has web hosting and credit card service providers. He also subscribes to a service that allows him to send out mass text messages and emails based on information that he enters in a spreadsheet. ES has an accountant, but no legal representation.

Goods

- Phones/phone-related equipment (accessories)
- Phone and computer repair tools
- Computerized cash registers
- Two desktop computers
- Internet-connected video surveillance cameras
- E-Commerce enabled website

Services

- Heating, electricity, water, phone
- Cable Internet (both locations)
- Web hosting
- Payment processing
- Mass email, text messaging system
- Accounting (outsourced)

IT Adoption : Based on the micro-enterprise not only using standard programs but also sophisticated custom-built software, it is assigned the code **Extensive IT Adoption**
Business Functioning : Based on the level of automation and smoothness of daily operations, the micro-enterprise is assigned the code **Administratively Efficient**

Non-technical Affiliations

ES had taken great pains to make his store an informational resource for the community, as illustrated in this exchange:

***[Researcher]** So it sounds like you sort of became a community hub in a sense
[ES] Exactly. Some of the other people coming in and a lot of people they come and they go: "This guy knows everything," and I don't. I just know that my computer...if you have a question... [and] I don't know the answer, [I tell them] "Just give me a second" and I'll step in the back and I'll use the internet... And I'll double check what I've looked up, and I'll make sure that the resources are right*

Capability : Based on ES' description, it appears that he harnesses the Internet for **Access to**

Information, Knowledge, and Expertise
--

He has developed strong relationships with his customers, and is the expert many turn to when faced with technical challenges. He maintains a business presence on Facebook and MySpace that addresses these community members, and he periodically sends them offers over email and via text message. ES had developed a web portal that allowed customers to review the status of their repair tickets and communicate with his business via email and online forms. The system was also integrated with a real time video chat client for instances in which customers had quick informal questions. ES' portal logged all communications between the micro-enterprise and its customers; it even connected store voicemails to tickets based on the originating phone number.

Capability : Based on his description, ES' web portal seems to enable his business to offer increased Service Quality

ES suggested that his high level of engagement with his customers, both in person and through multiple electronic means was the primary driver of ES' profits:

[I got myself] positioned with social networking and letting people know that you don't have to come in the store. You can pay for your preorders now. And then pick them up in 14 days or whatever. I really think it's important.. I'm on Facebook. We...we have...we have MSN Messenger. We have Yahoo. We have um, some of our...our clients use a program called Pal Talk. And we...we associate with people on Pal Talk, and.. MySpace.

I don't blog yet, but the website that I'm building has the ability to blog. And I want to. I also wants those blogs to be kind of...I want to borrow feeds ...with permission from some of the great types [resources] that I use. So there's people who write very good things that are very basic for customers. Right. I want to communicate to my clients and you know my customers. Say "Hey, thank you very much for coming this week. You should check this out..You know? And that's what I want to use it for, because that's the marketing wave of today.

I ask people: "Please go to Merchant Circle [online review site] and make a review about us... Go on our site. Spread the information. Tell people about us." That's how we do it. That's how we make our money. You know?

Technical Agency (Value Added/Cost Reduction) : Based on ES' description of his appreciation of the network effects inherent in technology, his technical agency is coded as **Value Added Technical Agency** : ES' description of his use of various technologies corresponds to an **Asocial (Productivity)** approach, and a **Social Acquainted (Customers, Chat Programs & Online Social Networking & Interactive Web Portal & Text Messaging)**
Adapter/Innovator : Based on ES' highly atypical (for micro-enterprises) uses of technology to transform many of his core business processes, the micro-entrepreneur is assigned the code of **Innovator**
Capability : ES' use of Facebook and other social networking sites appears to offer his business **Competitiveness and Access to New Markets**

ES recently affiliated with the OSBN community group. Prior to that, he had no official community affiliations, although he expressed that he had personal connections that could help him solve problems:

I've been around. I understand how the city works. The guys downtown. My mom's a city planner so I kind of know... a lot of different people down there. I know who...who to ask for, who to beg, and who to cry to when I have a real problem. I've taken the time to work on relationships that give me an edge probably over other people. I think that's important. It's important to get to know people and hob knob with people.

As mentioned, ES has an accountant, but no legal representation. He markets largely via word of mouth. His business is not strongly connected with other businesses in the area.

Social Agency : ES' extensive social networking seemed to be directed at **Securing Resources (Non-Technical Affiliates)** and **Discovering Opportunities (Non-technical Affiliates)**
Non-technical Affiliation: ES' recent relationship with OSBN is indicated by the code **Weak tie (OSBN)** and his work on making long term connections with city officials is denoted by **Non-technical Affiliation: Strong ties (City Government)**

Technical Affiliations

ES's employee is also a technical expert who can repair mobile phones and computers. ES' other primary technical affiliation is a friend who is an expert programmer earning a degree in Washington State. ES does not employ this friend for development work, but does ask his advice on tech trends. Regarding the role of his technical affiliates, ES stated:

[I'm] Self-taught. [But] Michael [the employee] taught me too. Mike used to own a computer company called ----- . He and another fellow had their own business.

ES has also cultivated relationships with individuals who perform contract work for him, and whom he mentors. He is currently building more of these relationships, in preparation for scaling up his technical services offerings and potentially opening additional locations.

Social Agency : ES' expressed desire to hire programmers to further improve his website's efficiencies corresponds to the **Securing Resources (Technical Affiliates)** approach, and his consultation of his employee and his friend corresponds to the **Discovering Opportunities (Technical Affiliates)** approach
Technical Affiliation: ES' ties, as described, are indicated with the codes **Strong tie (Employee), Strong tie (Programmer Friend)** and **Weak ties (Multiple Contractors)**

Business and Financial Environment

ES has no loans and no experience working with the banking system. He funded his startup costs with personal savings. Business has been good for the BM stores, despite the tough economic climate nationally and locally. ES expressed frustration about stereotypes of minority owned businesses as low-cost and low-value enterprises. He indicated that many individuals with whom he had dealt had expressed an unrealistic desire to receive significant discounts for services that were substantially similar in quality to those provided at "big box chain stores." Due to time constraints, the researcher did not ask his opinion about whether it was easier for smaller or larger businesses to operate in the Omaha area.

Business Environment : Due to many other enterprises offering similar services to ES, and ES

having many direct competitors, this micro-enterprise's business environment is assigned the code **High Competition**

Technical Experience

ES is a highly motivated self-taught technical expert. During the interview, he described in detail his methods for researching repair techniques for phones he had never serviced before, sourcing exotic parts, and discovering promising new technologies to enhance his own productivity. Not only is ES proficient at hardware repair, he also taught himself computer programming and web design. ES described himself as:

Kind of dogged about things.. if I need to know something.. if I need to learn about something, I'll get into it, and then I'm going the next step and the next step, the next step. Even when it's for something as simple as a \$5 repair. I want to know more about [things]. And I actually have that inclination to do that.

ES felt that technology had played a crucial role in his business success from process enhancement, informational, marketing, and sourcing perspectives. He suggested that the efficiencies he got from technology enabled him to spend time engaging with his customers. ES indicated that he had two primary hurdles in adopting technology. The first involved finding the time to do necessary research and development work. The second involved finding cost-effective service providers that simultaneously provided good ease of use.

IS Experience : Although ES had not attended formal computer classes, he had received significant instruction from his friend and employee for a long period of time. He used technology in all areas of his life and had developed a sophisticated domain-specific application for his enterprise. Therefore, ES is assigned the code **High IS Experience**

Capability : Based on ES' description about using the Internet to learn useful skills and concepts, it appears that technology has enabled **Learning and Labor Productivity** for this micro-enterprise

Deprivation : Based on ES' statements that finding time to learn was a major challenge, his micro-enterprise is assigned the deprivation **Knowledge Barriers and Staff Resistance**

Micro-enterprise Business Processes

ES has solid business processes in place that have made his stores consistently profitable, and that have secured him against losses from theft. He described in some detail his approach to brainstorming and producing and progressively elaborating action plans for his business. He indicated that he has streamlined most of his processes to the extent that a single employee can handle most business functions in a store without feeling overwhelmed.

Capability : Based on ES' description, use of technology appears to offer the micro-enterprise **Administrative Efficiencies**

ES indicated that his business model was a natural outcropping of his perceptions of market demand over time. Asked to essentialize his process for making business decisions, he said that it was a matter of balancing his cost/profit forecasts with other considerations:

The most important part about me making a decision is that is it gonna provide profit? If it doesn't make dollars, it doesn't make sense for me honestly. It doesn't have to be [making money] in the short-term. But actually I look at what I have available and I look at my forecast. I go: Will I have enough resources? If I...if I suffer this now, do I really think that I'll be able to make that up? If it affects the utilities, my rent, and me being able to buy stock and things like that then I don't mess with it [risk it]. [I also ask] : Will it make the job faster, quicker, and easier? Well then...[in that case] it's not such a burden on me anymore. Sometimes convenience is important.. Even if it's not making you more money, sometimes the convenience...can have value.

Technology Plan

ES outlined a technology plan that involved using his website to streamline inventory management and customer engagement. He also described how he had already implemented the first stage of his technology plan, that involved eliminating redundant services and renegotiating rates, for a savings of approximately two-hundred and fifty dollars per month. ES

expressed many great insights into technology concepts and the role of technology in his business. The quote below is illustrative of such insights:

Cell phones are a pop culture type of thing. Um, [but] the phone...the phone itself has changed the way we see the world. It is macro. It's a huge part of...of...of technology today. You know? And especially with Smartphones. It's the way that I communicate with my customers, here, there, and everywhere. We can send [messages] to each other. [we can indicate] How fast we're going to receive orders. You can process payments, everything with it. It's huge.

Business Environment : ES' description of the core of his business primarily being driven by information (changing phone trends, customer demand, need for extensive marketing) suggests that his business is **High Information Intensity**
Technical Agency : Based on ES' strong ability to connect IT to his business' day to day tasks, the micro-enterprise is assigned the code of **IT Plan**

Micro-enterprise Achieved Functionings

ES is highly skilled at running his business using cutting edge technologies. From a human standpoint, he has excellent control of his employees and costs. He has built a great deal of social capital by becoming a technology resource for his community, and by cultivating political connections. Economically, his business is doing well enough that he is drawing up plans for significant expansion. ES' achieved functionings are summarized below:

Table CNIAF. BM Store Achieved Functionings

Achieved Functionings Coding Synopsis:
Stage of Growth : Success
Adapter/Innovator : Innovator
IT Adoption : Extensive IT Adoption
IS Experience : High IS Experience
Business Functioning : Administratively Efficient

Agency Coding Synopsis:
Technical Agency : IT Plan
Technical Agency (Value Added/Cost Reduction) : Value Added
Technical Agency : Asocial (Productivity), Social Acquainted (Customers, Chat Programs & Online Social Networking & Interactive Web Portal & Text Messaging)
Social Agency : Securing Resources (Technical Affiliates), Discovering Opportunities (Technical Affiliates), Securing Resources (Non-Technical Affiliates), Discovering Opportunities (Non-

technical Affiliates)

Environmental Conditions Coding Synopsis:
--

Customer Dominance : Low Customer Dominance
--

Business Environment : High Competition, High Information Intensity
--

Technical Affiliation: Strong tie (Employee), Strong tie (Programmer Friend) and Weak ties (Multiple Contractors)
--

Non-technical Affiliation: Weak tie (OSBN), Strong ties (City Government)
--

Micro-enterprise Deprivations

ES has one primary deprivation: His business is so successful in its current stage that he lacks time to learn as much as he would like (though what he knows is significant. This deprivation is simply **Knowledge Barriers and Staff Resistance**.

Non-Intervention Case 1 Analysis

During the interview, ES described a number of capabilities that technology had enabled for his business. These are indicated in the table below.

Table CN1CET. BM Store Capabilities Enabled by Technology

Capabilities Enabled by Technology:
--

Access to Information, Knowledge, and Expertise
--

Service Quality

Competitiveness and Access to New Markets
--

Learning and Labor Productivity
--

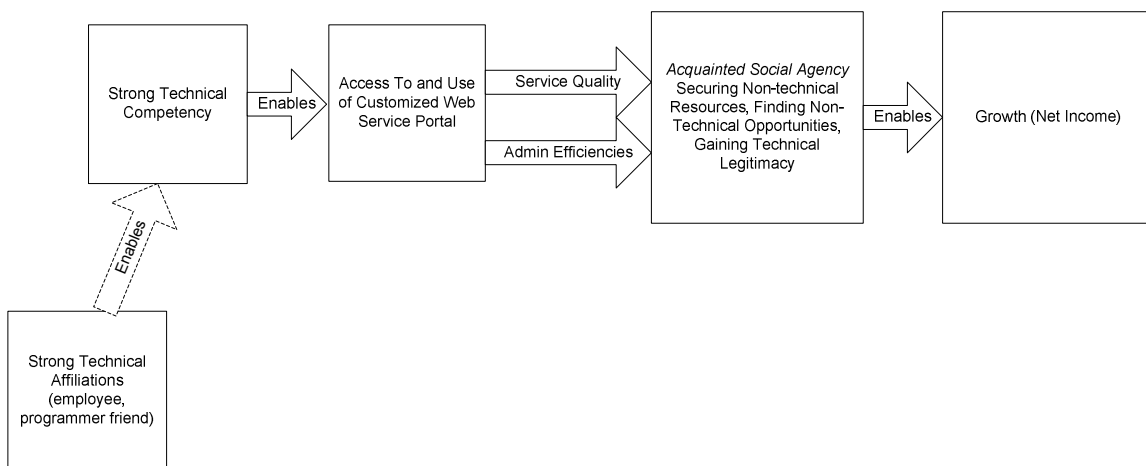
Administrative Efficiencies

The technologies that ES attributed his business' growth to were customer facing, and communication-oriented. Specifically, these were his socially integrated web portal, and his system for sending out mass email and text messages. These two technologies amplified ES' social agency in a number of important ways.

The web portal simplified the administration of a complicated business so that ES could focus on customer service in his store. It also facilitated customer service directly by helping ES

engage with customers in real time. Good customer service was tied directly to positive customer feedback on websites that could drive further store traffic. ES also indicated that without the portal, his business would not have been possible at its low staffing levels; the technology greatly boosted his net income. As well, use of the technology earned ES credibility with his technical affiliates (the contractors he was training). This pattern is indicated in Figure 14, below.

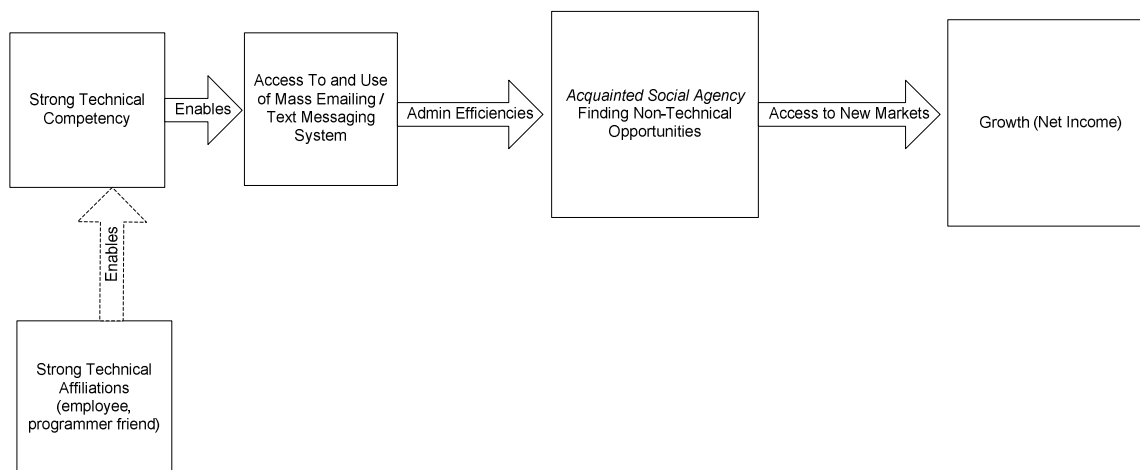
Figure 14: First Pattern of Technology Access and Use in Non-Intervention Case 1



As shown in Figure 14, ES had leveraged his knowledge and his partners (to an unclear extent, as depicted through the dashes in the arrow) to produce an interactive web portal that streamlined his entire business, providing great improvements to his service quality and administrative efficiencies that permitted him to maintain good relationships with existing customers, find new customers, and gain technical legitimacy in the eyes of a new group of technical affiliates he was cultivating. The efficacy of this strategy is all the more impressive considering the high level of competition in ES' sector.

ES' use of a mass emailing and text messaging system was designed to help his business access new markets. The messages created 'buzz' around ES' product and service offerings. Figure 15, which is very similar to the other Figure, and depicts this pattern, appears below.

Figure 15: Second Pattern of Technology Access and Use in Non-Intervention Case 1



As illustrated in Figure 15, ES leveraged his knowledge, and his partners (to an unclear extent, as depicted through the dashes in the arrow), to utilize a mass messaging system that amplified his social agency, created stronger bonds with customers, and resulted in net income growth.

Non-Intervention Case 2: Environmental Cleaning

Located in west Omaha, PCS is an environmental cleaning company run by a sole proprietor PB, specialized in dealing with hazardous waste. The company is run out of PB's home. It serves businesses in the Midwest region, not just the Omaha area; PB travels extensively due to high competition and lack of demand in Omaha proper. The company has been in operation since 1999, but PB has only been the owner since 2007, having purchased the business from his brother-in-law. The business has been highly profitable since its founding, according to PB.

PB learned to manage this kind of business during a twenty year career in the military, as well as during a stint working part-time for his brother-in-law. He originally employed ten people to help him, but due to rising costs of health insurance, had to let go of his employees,

and allow them to be employed by a subcontractor with whom he works. The business gets clients through word of mouth; typically business is triggered when the EPA or another regulatory agency makes an assessment against a company.

Stage of Growth : Based on the micro-enterprise being consistently profitable, it is assigned the code **Success**

Customer Dominance : Based on PB's statements about demand, PCS is assigned the code **High Customer Dominance**

Business Environment : Based on PB's statement that he faced high competition, and his later description of several direct competitors, PB is assigned the code **High Competition**, and based on the fact that PB's services vary job by job and require some research, the business is assigned the code **Average Information Intensity**

Non-technical Affiliation: Based on the fact that all of PB's former employees are now employed by a subcontractor with whom he works routinely, the micro-enterprise is given the code **Strong tie (Subcontractor)**

Micro-enterprise Goals

PB's immediate goal is to become less involved in the day-to-day operations of the business. He described a grueling schedule of constantly being on-call due to the high risk nature of environmental cleanup jobs. He kept his phone in a holster on his belt. PB said:

You .. have to have contact all the time. You have to have contact with the client and contact with the guy out in the field, because we always call ourselves MacGyver because nothing ever works the way it is supposed to. The client will give you a scope of work but whosoever doing the scope of work doesn't have a clue about what needs to be done so you are always playing MacGyver on every job you go to.

PB's definition of success has to do with reputation. He indicated:

You can use a money benchmark but I think even more than that it's your reputation in the business place... As a younger person you see dollar signs, of course, as you get older the dollar signs don't always make the difference it's the respect that you have.

PB has a secondary goal of getting into the lucrative government sector of the remediation industry. His tertiary goal is to engage more with social media (using Facebook, and blogging) so as to be able to market more effectively, as his only marketing was via word-of-mouth.

Technical Agency : Based on ES' descriptions throughout the interview, his business appears to have an **Asocial (Productivity Only)** approach

Micro-enterprise Means

PB's net income comes directly from profits earned by the PCS company. PB produces estimates and bids on work to be done by his sub-contractor, based on his remediation plans. PB owns a desktop, and a laptop, as well as specialized equipment for air monitoring. Both computers are equipped with Microsoft Office software and QuickBooks. Office is used for management of contacts. PCS has a website, designed by a professional. PB does not edit his own website; he pays the contractor to do so whenever he wants changes. The website looks attractive but is functionally very basic; it does not even have a contact form.

Both PB's desktop and laptop computers have access to broadband Internet service (Cable). PB pays for ongoing hosting of his website and maintenance of his domain name. PB's laptop is equipped with a mobile broadband card for jobs that require travel. PB has access to legal and accounting services. He also must carry specialized insurance. PB's home office has phone service, running water, heating and cooling, and electric service.

IT Adoption : Based on PB's use of standard technologies, the micro-enterprise is assigned the code **Average IT Adoption**
Adapter/Innovator : As PB was only using technology to drive efficiencies, he is characterized as an **Adapter**
Technical Agency (Value Added/Cost Reduction) : PB seemed primarily interested in using technology to lower day-to-day overhead. His approach is thus coded as **Cost Reduction**
Deprivation : PB's unwillingness to edit his own website suggests a **Lack of Top Management Engagement**

Goods

- Website
- Air quality testing equipment

Services

- Heating, electricity, water, phone
- Cable Internet (Home only)
- Mobile broadband
- Accounting

Legal
 Web Hosting
 Insurance
 Phone

Non-technical Affiliations

PB has been affiliated with the PTAC program run by NBDC, and has consulted with the SBA. He characterized these organizations as follows:

They've [referring to NBDC] done ok. But, uh, they give you the surface of what you need to know about going after government contracts. But where the rubber meets the road is finding the contracts and writing the proposals, and that's a big time consumer, and guys like me just don't have time for that. Small Business Administration is a joke unless you're a minority. Waste of money.

<p>Non-technical Affiliation: Given PB's statements, the micro-enterprise is assigned the code Weak tie (NBDC)</p>
--

PB had a negative opinion about the support structures in place for local businesses:

No I would say not. The city of Omaha you have to now be filed as a Tier 1 or a Tier 2 or whatever based on your minority status and all that stuff to get contracts.. so that's pretty much a waste of time for a guy like me and in addition in the city of Omaha, you have some very old companies here like -----, ----- construction, you cannot compete against those guys

Technical Affiliations

PB has never hired anyone for technical assistance, outside of the contractor who produced his website. Asked about assistance he has received from affiliates, PB indicated:

My ex-wife she set it all up and then I have a friend who's an Afghan guy [soldier], he was over in Afghanistan, he's kind of fixed my stuff once in awhile, but he won't be back for a couple of months. My son did my PC wireless network

PB did not seem to be very engaged with his technical affiliates. For instance, he expressed confusion about how to use social networking to advertise his business, but had never asked his son for help.

Technical Affiliation: Based on PB's characterization, his micro-enterprise is assigned the code **Strong tie (friend, occasional support)**

Technical Agency (Consultant-vendor/Vendor) : Based on PB's description of having only used a single vendor, the micro-enterprise has a **Vendor** approach

Deprivation : Based on PB's lacking support for day-to-day technical challenges, the micro-enterprise is assigned the code **Poor Organization**

Business and Financial Environment

Asked about the regulatory environment, PB stated that he felt that the regulations were appropriate, but was upset about the level of business taxation and insurance overhead:

We're incorporated here. As far EPA? OSHA? I've never had an issue with them. Some of the companies that call me, do, and that's why they call me. But if you want to talk taxes, sure, that's a whole new game. It's ridiculous. Taxes kill small businesses. Taxes are high at both the federal and state levels here, and city of Omaha. It's absurd that I have to pay taxes on a Power Washer... it's all personal property. So I have to pay taxes on that. You pay workforce development taxes, and then you have the insurance on top of that. The state and the insurance companies are in cahoots, if you don't pay your insurance premium the state court comes after you. It's just crazy, it's ridiculous, and insurance is one of the biggest issues I think, cost.

PB held one business loan, from when he borrowed money to purchase the business four years ago. He indicated that he had not had trouble getting the loan, but that the financial system presented a serious obstacle to small business owners currently attempting to get loans.

PB indicated that larger businesses in his space had significant cost advantages with respect to bidding jobs, due to their having infrastructure in place to handle waste disposal and other services internally. PB also indicated that larger businesses also had strong existing relationships with the city, that created a large barrier to entry for a business like his.

Technical Experience

PB had not received individualized technical assistance. He had taken a course on office productivity at Metro tech, and had found that valuable. He received instruction on the job during his time in the military, and had also taught himself basic skills, like use of the Internet.

PB indicated that lack of time and knowledge were key issues for him in deploying technology effectively. He stated that use of technology had not been critical to his business' success, but that he believed technology was a good investment.

IS Experience : Based on PB's having received instruction both in the military and from a class, and his use of his computers for both personal and work activities, the he is assigned the code **Moderate IS Experience**
Capability : Based on PB's descriptions, technology had primarily enabled him to achieve **Administrative Efficiencies**
Deprivation : Based on PB's description about his lack of time and technology knowledge, the micro-enterprise is assigned the code **Knowledge Barriers and Staff Resistance**

Micro-enterprise Business Processes

Asked what kind of thinking was involved in his business decisions, PB indicated that he performed comparability analysis:

I think just tried and true. Past examples. Like bids and stuff like that, mostly I can do that in my head now. I've been doing it long enough so I'm not really going through the whole analysis process .. kind of an automatic thing.

He indicated that he managed business development himself, and that this took a great deal of time. Overall, it seemed like PB was effective at managing the services his company provided, but less effective at managing the marketing and networking aspects.

Technology Plan

Asked whether he had a technology plan, PB indicated that "there is no plan." He indicated that he would want to use technology for specific purposes: "If it gains us some measure of success."

Technical Agency : PB's inability to articulate a connection between IT and his use of IT leads to the micro-enterprise being assigned the code **No IT Plan**

Micro-enterprise Achieved Functionings

From a human standpoint, PB was skilled at running his business using standard technologies. He had a solid mastery of Windows, email, Internet searching, Quick Books, and Microsoft Office products. Socially speaking, PB had built up appropriate connections to the extent that his services were continuously employed, though his marketing was only word-of-mouth. Economically, the micro-enterprise was successful. PB's achieved functionings are summarized in the table below.

Table CN2AF. PEC Achieved Functionings

<p><u>Achieved Functionings Coding Synopsis:</u> Stage of Growth : Success Adapter/Innovator : Adapter IT Adoption : Average IT Adoption IS Experience : Moderate IS Experience</p>
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<p><u>Agency Coding Synopsis:</u> Technical Agency : No IT Plan Technical Agency (Consultant-vendor/Vendor) : Vendor Technical Agency (Value Added/Cost Reduction) : Cost Reduction Technical Agency : Asocial (Productivity Only)</p>

<p><u>Environmental Conditions Coding Synopsis:</u> Customer Dominance : High Customer Dominance Business Environment : High Competition, Average Information Intensity Technical Affiliation: Strong tie (friend, occasional support) Non-technical Affiliations: Weak tie (NBDC), Strong tie (Subcontractor)</p>

Micro-enterprise Deprivations

PB suffered from deprivations that were human and social in nature. On a human level, PB lacked the knowledge necessary to embrace social technologies and expand his web presence. On a social level, PB lacked connections to the local business community and technical support resources.

Table CN2DS. PEC Deprivations

<p><u>Deprivations Coding Synopsis:</u></p>
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Knowledge Barriers and Staff Resistance
Lack of Top Management Engagement
Poor Organization

Non-Intervention Case 2 Analysis

PB indicated that his website had not attracted any customers, and that technology only offered him administrative efficiencies.

Table CN2CET. PEC Capabilities Enabled by Technology

Capabilities Enabled by Technology:
Administrative Efficiencies

PB did not have a technology plan, and seemed to have some knowledge barriers in relation to technology concepts. Both of these factors probably contributed to his lack of engagement with technology. PB's business was a success and he certainly had the resources to hire consultants, but he did not choose to do so. Even though PB was having difficulty finding business in Nebraska, he had not created a presence on LinkedIn that might have made his business somewhat more visible. In fact, he did not use technology in a social way at all. Although he was apparently concerned with reputation, that concern only extended to the "real world."

Another, more mundane factor, probably contributed to PB's lack of success in gaining traction with his website. His company had an extremely generic name, and his domain name was also extremely generic. Not only that, but much of the site content was rendered using images rather than text. Given these conditions, and the fact that PEC operated in a high competition business environment, his site was not being indexed effectively by search engines. PB's key technology issues and non-technical deprivations are indicated in the table below.

Table CN2KI. PEC Key Issues

Key Technology Issues :**Lack of an IT Plan****Asocial Approach to Technology****(Lack of) Technology-related Social Agency****Key Non-Technical Deprivations :****Lack of Top Management Engagement****Non-Intervention Case 3: Advertising Business**

The MMA advertising business is run out of MZ's home in Fremont, Nebraska. This incarnation of the business is new; it previously existed in Madison NE where MZ and her husband ran another, larger version of the same business. MMA specializes in two kinds of items: branded corporate products, and Christian apparel. The Christian apparel side of the business is newer to MZ, but she views it as more promising than the bread and butter advertising side, as the latter is apparently somewhat saturated in Fremont. MZ's previous business had been in operation for seven or eight years, on and off. While the other business MZ and her husband owned was successful, the current business earns very little money. MZ's husband has had to take another job, and she may have to do so in the near future, as well.

Stage of Growth : Based on it being unclear whether or not the business will be able to garner customers in its new location, the micro-enterprise is assigned the code **Existence**

Customer Dominance : Based on the micro-enterprise having few customers, it is characterized as having **High Customer Dominance**

Business Environment : Based on MZ's statements about having a number of direct competitors, and the ease with which customers can switch, etc., the micro-enterprise business environment is characterized as **High Competition**

Business Environment : Based on MZ being in an advertising business, which is primarily concerned with information, the micro-enterprise business environment is coded as **High**

Information Intensity

Micro-enterprise Goals

MZ wants to focus on her family first, and her business second. Asked about her goals, she stated that she wished to use technology to reduce overhead so she could spend more time with her kids:

I definitely want to have more presence on the web, I want to promote my business [via] all avenues, and I want this interaction to allow me to spend more time with the little guys since my first job is as a mom. My husband works full time as well, and loves his job at the -----, so we're a two-income family.

This prioritization aligns well with MZ's definition of success, which is:

To be a good wife and mother, show my children how to behave and how to treat others, respecting others so they respect you, and setting an example for them. It is hard, though; we sometimes do things we shouldn't do. The main thing is being true to yourself and those values and morals you have. Success business-wise comes back to [being honest and having integrity, standing behind your product]. I'm very strong in that belief. I remember one time... we did a job for a customer...I thought we had everything bid correctly, the customer thought he had a great deal, and when I got the bill from the vendor of my supplies I realized I mis-bid the job. I now double-check my work to make sure I didn't make a mistake or quote a job incorrectly.

Technical Agency (Value Added/Cost Reduction) : MZ expressed extreme cost sensitivity during the course of the interview, and expressed a desire to use technology primarily to reduce overhead. Thus, the micro-enterprise is given the code **Cost Reduction**
Deprivation : MZ's statements during and after the interview suggested that she and her husband were suffering from a **Lack of Savings**

Micro-enterprise Means

MZ stated that her income came from markups on branded goods she sold. Her raw materials are product samples that she displays at trade shows. Her IT artifacts consist of a laptop and cell phone. The computer has Microsoft Office products installed on it along with Adobe Photoshop and Illustrator and QuickBooks. MZ has broadband Internet at home. MZ's home has phone service, running water, heating and cooling, and electric service. MZ does not have access to an accountant or a lawyer for her business.

Adapter/Innovator : As MZ did not wish to transform MMA using technology, but only to improve its efficiencies, she is characterized as an **Adapter**
IT Adoption : Due to MZ's use of design applications in addition to standard office productivity tools, the micro-enterprise is coded as having **Above Average IT Adoption**
Capability : Based on MZ's discussion of how she used Photoshop and Illustrator, it appeared that these programs had offered her **Administrative Efficiencies**

Goods

Product samples
Laptop

Services

Heating, electricity, water, phone
Cable Internet (Home)

Non-technical Affiliations

MZ is strongly involved with her church, and attends a variety of church-related events at which she passes out her business card. She also attends trade shows whenever possible, and has gone door-to-door to other businesses in her area to increase awareness of her business.

MZ had recently affiliated with the NBDC PTAC office, but does not work with any other community groups and did not indicate awareness of any, either. As stated, MZ does not have a lawyer, or an accountant, and all advertising for her business is word-of-mouth.

Non-technical Affiliation: Based on her description, the micro-enterprise is assigned the following codes **Strong tie (Church), Weak tie (NBDC), Non-technical Affiliation: Weak ties (Trade Shows)**
Social Agency : MZ's style of meeting people to court business aligns with the **Discovering Opportunities (Non-technical Affiliates)** approach

Technical Affiliations

MZ has had contact with technical vendors, but indicated that she halted the conversations as soon as cost came up. Apparently, MZ cannot afford even a few hundred dollars for a website, and does not want to waste vendors' time. MZ receives tech assistance from her younger brother. She stated:

My younger brother who also works from home for the American Red Cross, he is very computer savvy and is the guru in the family. When I run into a [problem] I call him.

Outside of the help she receives from her brother, MZ does not have others to turn to.

Technical Affiliation: Strong tie (Brother, Ongoing Support)

Business and Financial Environment

MZ had no opinion about the regulatory environment in Omaha. As far as banking, she had loans, and stated "I think we've been treated well. I wish the interest rates were a bit lower."

MZ felt that it was tough to get established in the Fremont area. She indicated:

I've found out people are loyal to companies from whom they've been buying things for years, which I think is wonderful. But I think customers should give other companies an opportunity to bid on a particular product or service as well. For example, I approached my bank for a chance to bid on supplying their pens but was turned down. With the shirts I sell, there's no competition in Fremont. I've talked to stores about having displays in their location. I've looked into grants and loans, but I don't want to go into more debt. Hopefully there are opportunities for grant money so I can buy some public displays for my products.

Deprivation : Based on MZ's statement about her difficulty breaking into the Fremont market, the micro-enterprise is assigned the code Non-technical Affiliations: Social Exclusion (from local business community)

Technical Experience

MZ appeared to be reasonably technically proficient. She brought up the idea that she would like to use QR codes (paper bar codes that can be scanned by Internet-enabled phones) to link up displays to products on her website, should she able to develop one in the future. MZ was entirely self-taught. She had learned to use Photoshop and InDesign well enough to run another business quite successfully. Technology had not been critical to the success of her

current business, although she wanted it to be in the future. Regarding her view on technology,

MZ stated:

I'm excited. Some of it scares me. With social networking I understand why it's successful, but I find people put too much information about themselves on the internet...they're finding now that people who aren't supposed to see your information are finding your information. I have received emails recently from Kroger saying someone may have accessed some of my personal information, so it's scary. Technology is great, but sometimes it gets too personal and you miss the face-to-face relationships and connections. But I think it's needed...you have to go with the times. Especially with the young generation right now, people in their 20s and 30s, they know more about these things than I do in my mid-40s, but the technology is there and I think we have to go with it. We have to keep learning as [time passes].

She also indicated that she felt her primary obstacles to adopting technology involved cost, time and knowledge.

Deprivation : Based on MZ's characterization, the micro-enterprise is assigned the code **Knowledge Barriers and Staff Resistance**
Technical Agency : Based on MZ's statements to the effect that she was not actually using social networking technology for her business, MZ's approach is coded as **Asocial (Productivity)**
IS Experience : MZ had not attended formal computer classes, but she had become proficient enough in two applications to run an intensive business with them, and she used her computer for both personal and work related reasons. Therefore the micro-enterprise is assigned the code **Moderate IS Experience**

Micro-enterprise Business Processes

MZ seemed to have decent processes in place. She articulated a cost/benefit strategy for business decisions, and said the following regarding her targeting of customers:

For the Christian apparel and accessories I'm focusing on the youth. For ad specialties, publishing, and printing, it varies. I work with a gal with a tomography business; I work with a health center; I work with the YMCA. Trying to get my foot in the door at bigger companies has been hard for me, because I don't know how to approach them. In Madison people knew where to go (my store) when they needed ads or pens, etc. Now that I'm here, I have to do more legwork because I don't have a storefront, many people don't know who I am, so it's taking time to build relationships.

Social Agency : Based on MZ's statements regarding her partnerships, the micro-enterprise is

assigned the additional code of **Securing Resources (Non-Technical Affiliates)**. The nature and extent of these working relationships was not revealed during the interview, so no other codes are added

Technology Plan

MZ's technology plan involved getting a website up and running, and then engaging others via social networking. She hoped to find cost effective assistance in starting her website, as she felt she did not have the knowledge to set one up on her own.

Technical Agency : Based on MZ's ability to connect her business needs to her technology needs, the micro-enterprise is coded as having an **IT Plan**

Micro-enterprise Achieved Functionings

MZ had achieved success with her business in another community, but was not achieving a high level success in her new community. She had good business processes and a steadily increasing set of social connections. The micro-enterprise's achieved functionings are summarized in the tables below.

Table CN3AF. MMA Achieved Functionings

Achieved Functionings Coding Synopsis:

Stage of Growth : Existence

Adapter/Innovator : Adapter

IT Adoption : Above Average IT Adoption

IS Experience : Moderate IS Experience

Agency Coding Synopsis:

Technical Agency : IT Plan

Technical Agency (Value Added/Cost Reduction) : Cost Reduction

Technical Agency : Asocial (Productivity)

Social Agency : Discovering Opportunities (Non-technical Affiliates), Securing Resources (Non-Technical Affiliates)

Environmental Conditions Coding Synopsis:

Customer Dominance : High Customer Dominance

Business Environment : High Competition, High Information Intensity

Non-technical Affiliations: Strong tie (Church), Weak tie (NBDC), Non-technical Affiliation: Weak ties (Trade Shows)
Technical Affiliation: Strong tie (Brother, Ongoing Support)

Micro-enterprise Deprivations

MZ's deprivations were primarily economic and social in nature. From an economic standpoint, it appeared that MZ did not have the money to even pay for website hosting fees. MZ needed to create social connections with local businesses, but was finding that very challenging. MZ's deprivations are summarized below.

Table CN3DS. MMA Deprivations

Deprivations Coding Synopsis:
Knowledge Barriers and Staff Resistance
Non-technical Affiliations: Social Exclusion (from local business community)
Lack of Savings/Income

Non-Intervention Case 3 Analysis

According to MZ's description, she had used technology to become more administratively efficient in terms of laying out her ads, designing, etc. This capability enabled by her use of technology is indicated in the table below.

Table CN3CET. MMA Capabilities Enabled by Technology

Capabilities Enabled by Technology:
Administrative Efficiencies

MZ confessed that she had given up on searching for technical affiliates because she felt ashamed for wasting their time as she could not afford any services. She had access to loans but did not want to go into more debt than she had. She understood that a socially acquainted approach to technology might be helpful, but did not feel that she could adequately represent

herself in online social networks without having a website. She had some limitations on her conceptual knowledge, but they were not crippling.

MZ was exhibiting very active social agency. She had an IT plan. It seemed that her IT troubles stemmed from her lack of income/savings. MZ's key technical and non-technical deprivations are summarized in the table below.

CN3KI. MMA Key Issues

<p><u>Key Technology Issues :</u> Knowledge Barriers and Staff Resistance Asocial approach to technology</p> <p><u>Key Non-Technical Deprivations :</u> Lack of Income/Savings</p>
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Non-Intervention Case 4: Environmental Surveying

DL's environmental surveying business is essentially run off of DL's laptop, in coffee shops and his home office. DL is a contractor who assesses wildlife habitats, water resources, and environmental compliance. He started his business in 2000, ran it from 2000-2004, and then put it on hiatus due to being hired as an office manager. At the time of the interview, DL had no customers, and no revenue. He indicated that the services he offered were standardized, and that he had a lot of competition.

<p>Stage of Growth : Based on the short history of this business, and its lack of revenues, the micro-enterprises is assigned the code Existence</p> <p>Business Environment : Based on DL's initial and subsequent statements about the competitive environment, the latter is characterized as High Competition</p>

Micro-enterprise Goals

DL's primary goal involves establishing his business as credible. With no portfolio, he had found it difficult to market or attract new customers.

Social Agency : DL's approach, as described corresponds to **Gaining Legitimacy (Non-technical Affiliates)**

DL's definition of success was to "Make money and enjoy what you're doing. " DL's primary technology goal was closely aligned with his overall goal. He indicated:

My primary interest right now is getting a website because that adds credibility to what I can do .. if anyone wants to look up anything on me, they really can't find anything ... find out what services I provide unless I have direct contact with them and email them my range of services. So.. if I have a website then they can search me on a search engine, and see what I provide.

DL did not have any interest in learning technology beyond what was necessary to market his business.

Adapter/Innovator : DL only wanted to use technology to make his business more efficient. Therefore, the micro-enterprise is assigned the code **Adapter**
Technical Agency (Value Added/Cost Reduction) : Based on DL's focus on productivity using the micro-enterprise is assigned the code **Cost Reduction**

Micro-enterprise Means

As stated, DL had no net income from his business. He had no surveying equipment, either. He owned a laptop with Microsoft Office and QuickBooks installed, and had access to Internet at home. His home office had phone service, running water, heating and cooling, and electric service. He did not employ a lawyer or an accountant.

Goods

Laptop

Services

Heating, electricity, water, phone

Cable Internet

IT Adoption : Based on DL's setup being typical, the micro-enterprise is assigned the code **Average IT Adoption**

Non-technical Affiliations

DL had been engaged in a lot of networking with local business groups. He had also become involved in the NBDC process for registering to be able to obtain government contracts. DL seemed aware of the resources within the community for connecting to other businesses, and suggested that he had a tentative arrangement with one company to be a sub-contractor. He had a favorable impression of NBDC.

Social Agency : DL's networking style appears to correspond to **Securing Resources (Non-Technical Affiliates)** and **Discovering Opportunities (Non-technical Affiliates)**
Non-technical Affiliation: DL's business networking activities and work with NBDC are reflected by the codes **Weak ties (Business Networking)**, and **Weak tie (NBDC)**

Technical Affiliations

DL had never received personalized technical assistance. He had no technical affiliates to draw on in case of a problem, and no one to ask for advice.

Deprivation : Based on DL's lack of access to technical support, the micro-enterprise is assigned the code **Poor Organization**

Business and Financial Environment

DL had no opinion about the regulatory environment in Omaha, although he felt that "Less regulation is always better." He did not have loans. DL indicated that the Omaha area could not provide enough business to fund his company's operations: he needed to solicit business nationally. DL indicated that the business environment was competitive and expressed frustration about conditions related to government contracts in the city:

For example small businesses have specific designations as far as whether they are... service disabled veteran owned, which qualifies them to do certain work, they have a greater opportunity than maybe a large business does because they're trying to help the contractor with those people. Which is fine. For me that doesn't do anything, because I'm a white male that doesn't qualify for living, I don't live in a hot zone or anything like that so.

Technical Experience

DL had not received individualized technical assistance, nor had he taken any computer classes. Asked how he had acquired his technical skills, he stated:

Just developed over the last twenty five years I guess. It just depends on the job that you're at. And how attuned they are to upcoming technology.. Anyway, I guess it's who you surround yourself with and whether they are far advanced in their technology and usage of that technology.

DL stated that technology had not played a critical role in his business' success when he ran it in 2000, although he expected it might now. He expressed knowledge as his primary obstacle to adopting technology, stating:

So far, it [technology] has been kind of a detriment because I don't have the ability or I don't have the knowledge of where to go or what to do and how to get it, and which is the right, and trying to weigh what's the best options for me

Deprivation : Based on this statement, DL is assigned the deprivation **Knowledge Barriers and Staff Resistance**.
IS Experience : Based on DL's having not taken any computer classes, and the quality of publicity materials he had generated using Microsoft Office, he is assigned **Low IS Experience**
Technical Agency : Based on DL's only using technology for productivity, his approach appears to be **Asocial (Productivity)**

Micro-enterprise Business Processes

DL indicated that he did not have business processes in place.

Technology Plan

Asked whether he had a technology plan, DL stated "No. I don't think I have any method of developing it."

Technical Agency : DL had no business processes in place, and was not able to articulate any plan for either processes or technology. Therefore, the micro-enterprise is assigned the code **No**

IT Plan

Micro-enterprise Achieved Functionings

DL had knowledge applicable to his consulting work and had made an effort to network. He had also begun work with the NBDC to get registered as a government partner. DL had basic technology skills. Economically, DL was only maintaining by drawing on his savings. DL's achieved functionings are summarized in the tables below. Notably, DL did not indicate that technology had enabled any capabilities for his business.

Table CN4AF. Environmental Surveying Achieved Functionings

<u>Achieved Functionings Coding Synopsis:</u>
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Stage of Growth : Existence Adapter/Innovator : Adapter IT Adoption : Average IT Adoption IS Experience : Low IS Experience
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<u>Agency Coding Synopsis:</u>

Technical Agency : No IT Plan Technical Agency (Value Added/Cost Reduction) : Cost Reduction Technical Agency : Asocial (Productivity) Social Agency : Gaining Legitimacy (Non-technical Affiliates), Securing Resources (Non-Technical Affiliates), Discovering Opportunities (Non-technical Affiliates)
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<u>Environmental Conditions Coding Synopsis:</u>

Business Environment : High Competition Non-technical Affiliation: Weak ties (Business Networking), and Weak tie (NBDC)
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Micro-enterprise Deprivations

DL suffered from human and social deprivations. From a human standpoint he lacked the knowledge to create or implement any kind of effective technology strategy. From a social standpoint, he lacked connections to individuals that could assist or inform him.

Table CN4DS. Environmental Surveying Deprivations

<u>Deprivations Coding Synopsis:</u>

Deprivation : Poor Organization
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Deprivation : Knowledge Barriers and Staff Resistance
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Non-Intervention Case 4 Analysis

DL's business had not had any customers. Thus, he could not characterize his typical business activities in any detail. DL's vagueness is reflected in the case codings, which are much more limited than for other micro-enterprises.

DL was also very reticent about his finances. Whereas some of the other micro-entrepreneurs were forthcoming about their financial deprivations, DL avoided the topic entirely. Therefore, it is unclear whether DL's activities in terms of his technology-related social agency were due to resource constraints or not. Certainly, he exhibited active *non-technical* social agency.

What was clear was that DL seemed to view having a website as a mark of legitimacy, rather than as a means to engage actively with other businesses. He held to a strictly asocial approach to technology, and indicated that his knowledge deficits prevented him from formulating an adequate IT Plan. These deficiencies should be very familiar from other cases, by now. They are summarized in the table below.

Table CN4KI. Environmental Surveying Key Issues

<p><u>Key Technology Issues :</u></p> <p>Lack of an IT Plan (extending to the web)</p> <p>Asocial Approach to Technology</p> <p>Lack of Technology-related Social Agency</p> <p><u>Key Non-Technical Deprivations :</u></p> <p>Poor Organization</p>

Conclusion

In this chapter, the results of case studies on eight intervention and four non-intervention micro-enterprises were presented in a structured manner. As well, the first sub-step of the analysis method suggested by Robeyns (Robeyns, 2006) and Zheng (Zheng, 2009) was applied. This step involved generalizing the description in the case to theory (Lee & Baskerville, 2003). The detailed analysis and careful coding in this chapter facilitates the comparative succinctness of the next chapter, which aggregates the cases according to growth and triangulates its findings with the assessments of community partners and relevant literature.

Chapter 6: Cross-Case Analysis

Introduction

The research question that this dissertation investigates is: *What patterns of technology access and use build capabilities than enable micro-enterprises to grow?* The previous chapter, *Results and Analysis*, presented a series of case studies and initiated the first sub-step of the analytic application of Sen's framework for the purpose of investigating this question. Where technology use occurred and growth occurred in a case, relevant concepts were highlighted and proposed relationships were indicated using simple explanatory drawings. In intervention cases where no growth occurred, key technology and non-technological reasons for the lack of growth were suggested.

In this chapter, data on all of the cases (intervention and non-intervention) is aggregated. Cases are grouped according to the relative amount of growth achieved through the micro-entrepreneurs' use of technology, and attempts are made to find similarities among the growth-related patterns identified in the individual case analyses, and differences that might explain variations in the amount of growth achieved. As well, in this stage, relevant thematic quotes from the community partners are introduced to enrich the discussion.

This chapter is organized as follows: First, the key issues and deprivations associated with micro-enterprises that did not grow as a result of using technology are placed alongside each other. Discussion of the commonalities and differences among these micro-enterprises is introduced. A 'vicious circle' pattern related to growth and the concepts identified in the discussion is presented. Second, key properties and behaviors of micro-enterprises that grew as

a result of using technology are aggregated. Discussion of the commonalities and differences among these micro-enterprises is introduced. Third, a pattern related to both growth and the concepts identified in the discussion is elaborated. The pattern's facilitating conditions are also suggested. Fourth, community partner quotes supporting aspects of the pattern are presented. Fifth, a revised figure is presented, that emphasizes the findings related to all the patterns discovered. The figure is explained in detail. Finally, a summary of the findings is presented, and the chapter concludes.

1. Access and use patterns of micro-enterprises that did not grow as a result of using technology

Two of the businesses in the study actually failed during the course of interventions, whereas other businesses remained at essentially the same level. The characteristics of the businesses that failed are depicted in the table below.

Table A2. Micro-enterprises that failed during interventions

Case Number	Name	Stage of Growth	Adapter/ Innovator	IT Adoption	IS Experience	IT Plan	Technical Agency	# of Strong and Weak Technical Affiliates?
5	Online Boutique	Existence	Innovator	Average	Moderate	No	<i>Asocial</i>	0
8	Green Energy	Existence	Innovator	Above Average	Moderate	Yes	<i>Asocial, Social Unacquainted, Social Acquainted</i>	1 (Problems only)

Both of these businesses existed in high information intensity, high competition environments. Both businesses were innovative, technology oriented, and based on unproven business models. Both were run by micro-entrepreneurs whose technology-related social agency was lacking, and who lacked reliable day-to-day technical support. Worse, neither of these businesses had strong local non-technical affiliations. Both businesses lacked income and eventually succumbed when their respective owners ran out of savings. One business owner

(WR, Case 8) had a technology plan that he was unable to execute due to lack of technical knowledge and his not having hired appropriate support. The other business owner (SZ, Case 5) did not even have a technology plan.

Some clear themes emerge from these cases. First, the failure of these micro-enterprises illustrates the riskiness of unproven business models. Second, the case circumstances show the importance of a micro-entrepreneur's having at least one strong tie to a technical affiliate that can offer both advice and professional services. Both businesses had almost exhausted their owners' savings by the time that eTeams intervened. The technical mistakes these businesses made were rudimentary (lack of security certificates in one case, lack of multi-lingual capability on an internationally targeted website in the other) and could have been easily addressed by a moderately skilled consultant.

With respect to the electronic communication approaches employed by these micro-entrepreneurs, SZ did not attempt to network. Rather, she took a completely asocial approach to technology, waiting for visitors to come to the site she had had built. WR attempted to network solely online. Neither approach was successful. In WR's case, while he exhibited admirable social agency online, his efforts were undermined by the fact that he was bidding for risky high dollar contracts, and was conducting his business in an administratively inefficient manner. It seems likely that if WR had altered some of his processes to be more efficient and consistent, and found local affiliates, he would have been able to make some sales.

As the micro-enterprises involved actually failed, these cases are perhaps somewhat extreme. Nonetheless, it is worth examining the other micro-enterprises in the study for similar issues.

Moving on to the other cases then, partial Case 7 (interior design) is discarded due to its not having any measurable outcomes at all yet; the remaining four businesses assume the following configuration, depicted in Table AC2a.

Table AC2a. MEs that did not grow as a result of using technology, Information Panel 1

Case Number	Name	Value Added/Cost Reduction	Customer Dominance	Competition	Information Intensity	Strong Non-technical affiliations	Weak Non-technical affiliations
6	Restaurant	Cost Reduction	Low	High	Low	1	1
10 (NI2)	Environmental Cleaning	Cost Reduction	High	High	Average	1	1
11 (NI3)	Advertising	Value Added	High	High	High	1	Many
12 (NI4)	Environmental Surveying	Cost Reduction	N/A	High	High	0	2

The micro-enterprises in this group were almost exclusively focused on using IT to reduce overhead. The exception, the advertising ME (Case 11, Non-Intervention Case 3), expressed certain innovative ideas about using IT to grow her business (she discussed QR codes, for example), but none of her 'value adds' were feasible on her limited budget, and she had not explored free options like joining social networking sites. There was no clear pattern in terms of the level of customer dominance, as two of the businesses were not functioning beyond the *Existence* stage, and it was unclear what their customer bases would be like at *Survival* and beyond. All of the businesses faced high competition. All except the Environmental Surveying business had at least one strong non-technical affiliate, and all of the businesses had at least one weak non-technical affiliate. All of these businesses demonstrated active non-technical social agency, but not technology-related social agency. Table AC2b depicts some additional information about these micro-enterprises.

Table AC2b. MEs that did not grow as a result of using technology, Information Panel 2

Case Number	Name	Stage of Growth	Adapter/Innovator	IT Adoption	IS Experience	IT Plan	Technical Agency	# of Strong and Weak Technical Affiliates?
6	Restaurant	Survival	Adapter	Below	Low	Yes	<i>Asocial</i>	0

				Average		(admin only)		
10 (NI2)	Environmental Cleaning	Success	Adapter	Average	Moderate	No	Asocial	1 (Occasional Only)
11 (NI3)	Advertising	Existence	Adapter	Above Average	Moderate	Yes	Asocial	1
12 (NI4)	Environmental Surveying	Existence	Adapter	Average	Low	No	Asocial	0

Of the businesses in this group, only one was operating at the success stage of growth. This micro-entrepreneur had the resources to increase his use of technology, and to employ technical affiliates, but did not perceive any value in doing so. All of these businesses were adapters, rather than innovators. These micro-enterprises were about average in terms of their IT Adoption. Their level of IS experience was moderate or low. Only one business in this group had an IT Plan, which, perhaps unfortunately, did not extend to using IT for communication. As well, this business (Case 11, Non-Intervention Case 3) was at the existence phase and was unable to employ the services of any contractors or consultants to help advise on or execute the plan, due to a lack of savings. As illustrated by the failure in Intervention Case 8, a technology plan's value is limited if the micro-entrepreneur lacks the resources to implement it.

The first sub-step of the analysis, presented in the *Results and Analysis* chapter, offered key technology issues and non-technical deprivations associated with each of these businesses. These key issues are collected in the table below.

Table AC2c. Key issues for Micro-enterprises that did not grow using technology

Case 6 (Intervention) Restaurant	Case 10 (Non-Intervention 2) Environmental Cleaning	Case 11 (Non-Intervention 3) Advertising	Case 12 (Non-Intervention 4) Environmental Surveying
<i>Key Technology Issues</i>	<i>Key Technology Issues</i>	<i>Key Technology Issues</i>	<i>Key Technology Issues</i>
Lack of an IT Plan (extending to the web) Asocial Approach to Technology (Lack of) Technology-related Social Agency	Lack of an IT Plan Asocial Approach to Technology (Lack of) Technology-related Social Agency	Knowledge Barriers and Staff Resistance Asocial Approach to Technology	Lack of an IT Plan (extending to the web) Asocial Approach to Technology (Lack of) Technology-related Social Agency
<i>Key Non-Technical Deprivations</i>	<i>Key Non-Technical Deprivations</i>	<i>Key Non-Technical Deprivations</i>	<i>Key Non-Technical Deprivations</i>

Lack of Income / Savings Lack of Access to Loans High Competition	Knowledge Barriers and Staff Resistance Lack of Top Management Engagement	Lack of Income/Savings	Poor Organization
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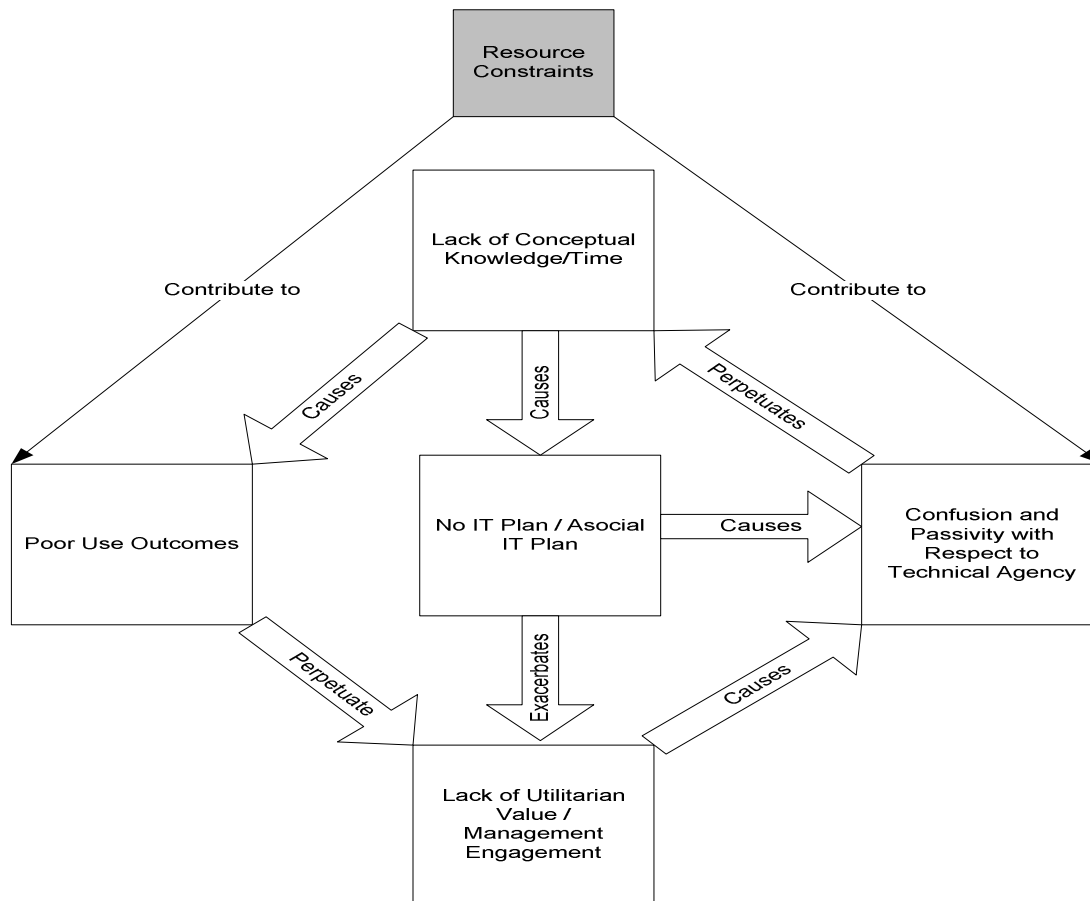
This table, AC2c, lines up well with the summary information found in the other table.

All of these businesses displayed an asocial approach to technology. In other words, they did not engage with their customers or even with other businesses using technology. One of the micro-entrepreneurs (the advertiser, Case 11) seemed actively afraid of the potential for her personal information to be misused online, and thus did not create an online presence for herself. Similarly, all of the businesses except for the advertising business displayed a lack of technology-related social agency. In other words, these businesses failed to discover technical opportunities, secure technical resources, or gain technical legitimacy. As well, all of the businesses except for the advertiser lacked an IT Plan. In other words, these micro-entrepreneurs lacked a fundamental conceptual understanding of how IT artifacts related to their existing business processes. A clear problem for all of these micro-enterprises was that they either lacked a strong technical affiliate, or were failing to utilize the affiliate they had.

Taken together, these tables suggest a sort of vicious circle pattern related to the use of technology to build capabilities to grow, a behavior pattern involving an asocial, cost-oriented approach to technology that helps these micro-enterprises achieve certain basic efficiencies, but that does not connect them to new customers or partner enterprises. The vicious circle pattern appears to be reinforced by a lack of technology-related social agency (finding technical affiliates, securing technical resources, gaining technical legitimacy), and lack of a coherent IT plan (inability to connect technology concepts to business concepts or assign value

appropriately). One possible depiction of the relationships among the concepts within this vicious circle pattern appears in Figure 16, below.

Figure 16. One depiction of potential relationship among vicious circle pattern concepts



In the Figure 16, above, a lack of conceptual knowledge and time leads to the micro-entrepreneur's inability to formulate an IT plan, as well as to poor use outcomes. Poor use outcomes and the lack of a conceptual understanding of the relationship between IT and the business (no IT Plan) contribute to a lack of management engagement with IT. The lack of engagement and the lack of an IT Plan lead to the micro-entrepreneur not seeking out technical affiliates because IT is not valued and its role is not understood. Unfortunately, technical affiliates are exactly what the micro-entrepreneur needs to improve his/her conceptual

knowledge and achieve good outcomes. Resource constraints are shown as a deprivation that contributes both to poor outcomes (due to the micro-entrepreneur's inability to execute any plan that may exist) and to a lack of agency (due to the micro-entrepreneur's inability to hire technical affiliates if family/friends/acquaintances cannot provide enough support).

Elements of this vicious circle pattern appear in all four non-growth cases, as well as in the failure cases. For instance, in Case 5 (the Online Boutique), AB lacked a conceptual understanding of Internet technologies and as a result could not formulate an appropriate plan for expansion or even for making her site appealing to customers. Thus, her site did not provide her with income. Due to her resource constraints and lack of understanding of the kind of help she needed, AB did not find a technical affiliate until she had almost run out of savings. Her continued poor outcomes, by that point, had caused her to disengage and focus on a full time job. In Case 8 (Green Lighting), WR had an IT plan which he needed help to execute. Unfortunately, he exhibited passivity with respect to finding technical affiliates, and an unwillingness to engage with the technology resources at his disposal. By the time WR connected with eTeams, his inability to execute his IT plan had caused him to lose out on most sales he bid for. As a result, he began to consider his business a failure, disengage, and focus on a new full-time job. In Case 6 (Mexican Restaurant), IC viewed IT as primarily a means to build administrative efficiencies (Asocial IT Plan). After resource constraints forced him to scrap the implementation of a Point of Sale system, he disengaged with technology. Although he received a website, he chose not to edit it after it had been built, perhaps not only due to discouragement but also because despite having received some training on web concepts, he failed to see a website or the Internet as tools for interactively connecting with customers. Unsurprisingly, since IC put no effort into promoting his site, and because it was in a high competition area, it received little traffic and his business experienced no growth as a result of

the site's development. This lack of growth, in turn, simply reinforced IC's lack of engagement with the technology. Case 10 (Environmental Cleaning) is very similar to Case 6, in relation to the use of the web/Internet. PB paid to have a site developed and then never edited it himself. As he did not have an IT Plan, he did not even understand why he might need to engage the services of his vendor again after the site had been built. As with EA, PEC was in a high competition area, and its website (without active promotion) did not receive many hits. The fact that the PEC website did not bring in income reinforced PB's belief that the Internet was not valuable/not worth investing in, as a means of connecting to customers. In Case 11 (Advertising), MZ's lack of resources prevented her from connecting to technical consultants who might have allayed her fears about using the Internet to build relationships with other businesses (improved her conceptual knowledge). As a result, she missed out on Internet related growth opportunities. The Environmental Surveying business in Case 12 explicitly stated that he had no IT Plan, and no means to formulate one due to his own lack of knowledge. His lack of agency with respect to finding technical affiliates meant that he was never able to improve his knowledge. As this business was at the "Existence" stage, outcomes did not come into play.

Of course, Figure 16 is purely illustrative and speculative; the study was designed to investigate technology access and use patterns that facilitated growth, rather than a lack of growth, or outright failure, in detail. Thus, the next section focuses on growth-related patterns.

2. Access and use patterns of micro-enterprises that grew as a result of using technology

Table A1 below depicts micro-enterprises that achieved growth, along some important dimensions. Almost all of the businesses that achieved income growth as a result of using

technology were already at the 'Success' stage of growth. The majority were adapters. Interestingly, the two innovator micro-entrepreneurs were both in high information intensity business environments. The micro-enterprises had little in common in terms of their level of IT Adoption prior to the intervention; it (their IT Adoption) ranged from below average to extensive. Still, the majority of the businesses (three out of five), were above average in terms of IT Adoption. TOB, the massage therapy business, was actually above average in terms of its IT Adoption, even though it was in the "Survival" stage of growth.

Table A1. Micro-enterprises that experienced growth as a result of technology access/use

Case Number	Name	Stage of Growth	Adapter/ Innovator	IT Adoption	IS Experience	IT Plan	Technical Agency	Additional Affiliations?
1	Bakery	Success	Adapter	Below Average	Low	Yes	<i>Asocial,</i> +Social Acquainted	+Materials Vendors
2	Furniture Store	Success	Adapter	Average	Low	No >Compensated by joining group w/ a plan	<i>Asocial,</i> >Social Acquainted, >Social Unacquainted	>Marketing Partners
3	Marketing	Success	Innovator	Extensive	Moderate	Yes	<i>Asocial,</i> >Social Acquainted	>Clients
4	Massage Therapy	Survival	Adapter	Above Average	Low	No, >Yes	<i>Asocial,</i> >Social Acquainted	
9	BM Phone Store	Success	Innovator	Extensive	High	Yes	<i>Asocial,</i> Social Acquainted	

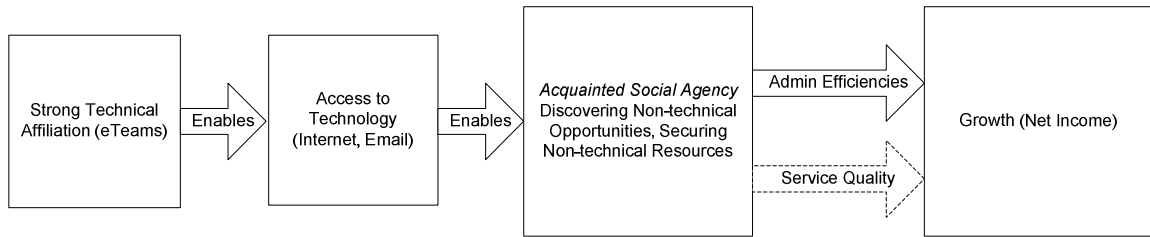
In the table, temporal changes in coding are indicated using the symbols '+' and '>.' A change in code that occurred post-intervention (3-4 months after the intervention) is denoted by a +. A change in code that occurred as a result of a described post-intervention pattern of access and use is indicated with a '>.' Almost all of the businesses in this success table began with an IT Plan. The Furniture Store and the Massage Therapy business constituted the exception to this rule. The massage therapist, AE, eventually developed a plan. The furniture store owner, JT, joined a group that formed a collective plan. Joining a group may have helped JT compensate for her low IS experience that was contributing to her inability to make a plan.

All of the businesses except for the Bakery had at least one strong technical affiliate involved with them throughout their history. The customer dominance in these businesses was mostly low, with TOB (the massage therapy business) being the exception. This is probably due to the other businesses being at the success stage of growth. The level of competition varied, with the Massage Therapy business and the BM Phone store experiencing the highest competition.

All of the micro-enterprises in this group exhibited technology-related social agency in their growth patterns (finding technical opportunities, securing technical resources, and/or gaining technical legitimacy). In terms of their technology agency approach, all of these micro-enterprises achieved success by using technology in a social acquainted manner. The social acquainted approach involves contacting customers/entities with whom the micro-entrepreneur has had previous contact. Only the furniture store owner achieved a growth outcome using the social unacquainted style. All of the business growth outcomes implicated both social agency and the capabilities Administrative Efficiencies, Service Quality, and Access to New Markets. As a result of employing social agency, three of the micro-enterprises picked up non-technical affiliations.

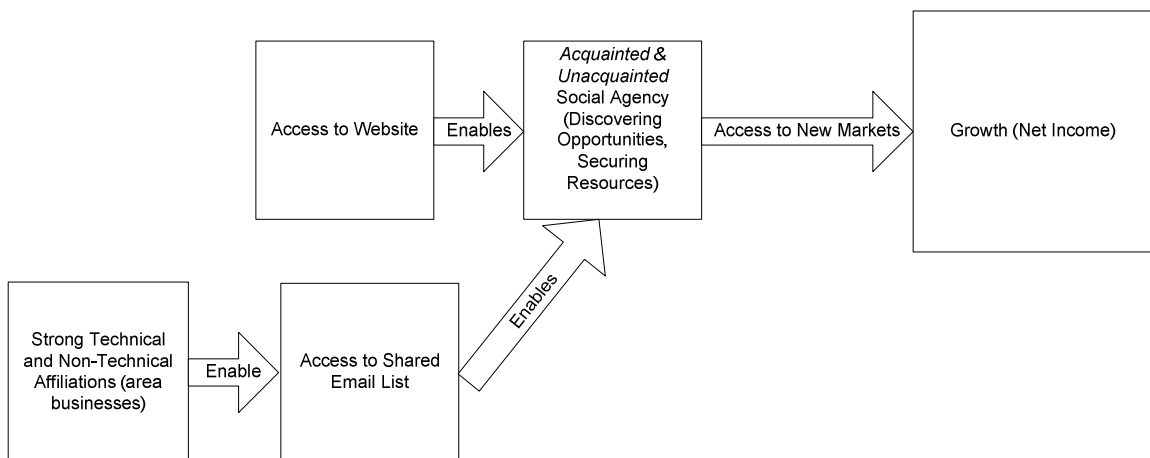
To summarize these findings, all micro-enterprises that were successful in this group either had or adopted an IT Plan. Similarly, all of these micro-enterprises except for the baker were able to call upon at least one strong (non eTeams) technical affiliate. All of these micro-enterprises achieved growth using a social-acquainted communications approach, exhibited social agency, and leveraged the capabilities of Administrative Efficiencies, Service Quality, and Access to New Markets. The collected diagrams (reproduced from the Results/Analysis chapter) below, illustrate how growth was accomplished.

Figure 6: Case Study 1 Analysis (Intervention)



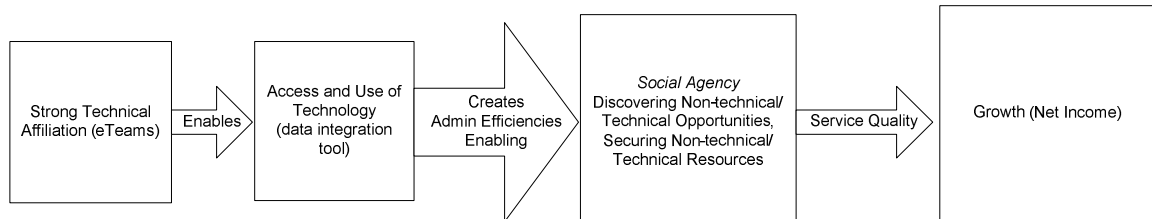
As the figure shows, forming a strong affiliation with eTeams enabled PN's access of the Internet and Email. AM's agency, or choice to use, these technologies, offered PN growth through improved administrative efficiencies and improved service quality. AM cited the improved administrative efficiencies he achieved as being directly related to the growth outcome. Therefore, the "Admin Efficiencies" arrow is solid. The relationship between AM's improved service quality and future growth was suggested by AM during the interview, but no direct evidence could be produced; the "Service Quality" arrow is dashed to reflect the uncertainty about the relationship.

Figure 8: Case Study 2 Analysis (Post-Intervention)



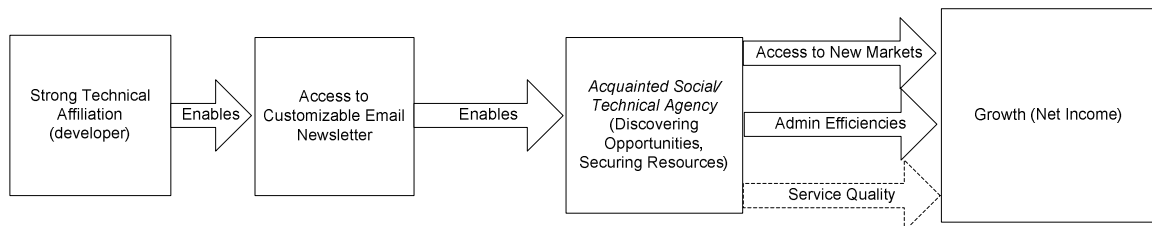
The figure above illustrates how JT's affiliations enabled a technical achievement (Access to Shared Email List), that she leveraged synergistically with her website (through the contribution of linking blurbs in the newsletter) to address both existing and potential customers. The result of JT's technology-enabled social agency was income growth.

Figure 9: Case Study 3 Analysis (Intervention)



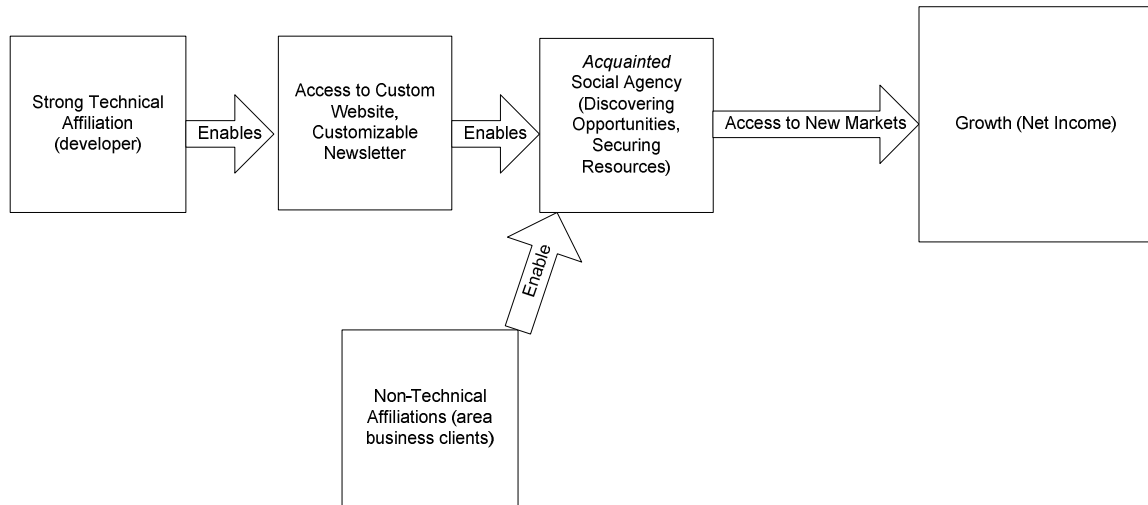
As shown in the figure, EN's use of the tool provided by eTeams enabled her administratively enough so that she could exercise social agency directed at improving AYS' service quality. As a result, EN's income grew somewhat.

Figure 10: Case Study 3 Analysis, Post-Intervention Pattern A



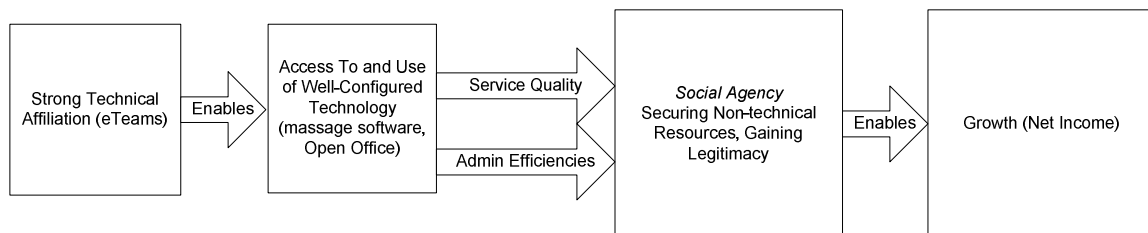
In the figure above, EN's use of a technical affiliate enables her to access a customizable email newsletter that can replace the coffee-table sized book her greeters previously provided to newcomers. Access to this new tool enables EN to change her business model and redirect her social agency. EN now calls newcomers and becomes acquainted with them, before offering the customized newsletter as a gift. EN's new social and technical approach enables her to address the 'next generation' of tech savvy newcomers to Omaha, greatly reduces her overhead, and, in her mind, improves her service quality by making the advertising process less obtrusive. The outcome of this strategy has been an increase in EN's net income.

Figure 11: Case Study 3 Analysis, Post-Intervention Pattern B



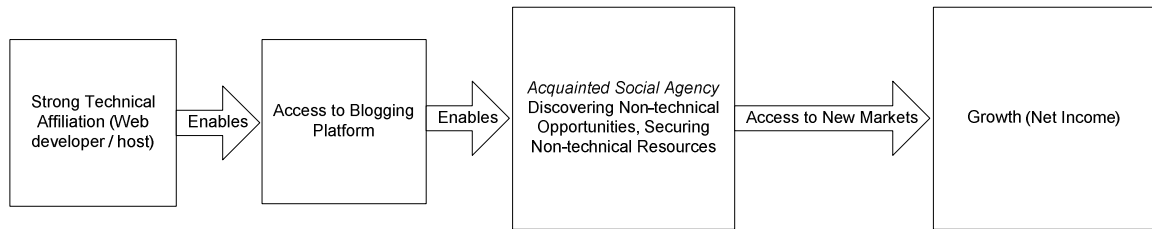
In the figure above, EN's association with a developer enables her access to two technology tools, a customized website and a customized newsletter. EN leverages her client relationships (Non-Technical Affiliations) to produce special promotions for a physical tradeshow. She sends out the newsletter to her opt-in email clients (exercising her social agency via an 'acquainted' technical approach) and the result is an event that allows all the participants to potentially access new customers. For EN, the event itself constitutes a new market, that is also a revenue generator.

Figure 12: Case Study 4 Analysis (Intervention)



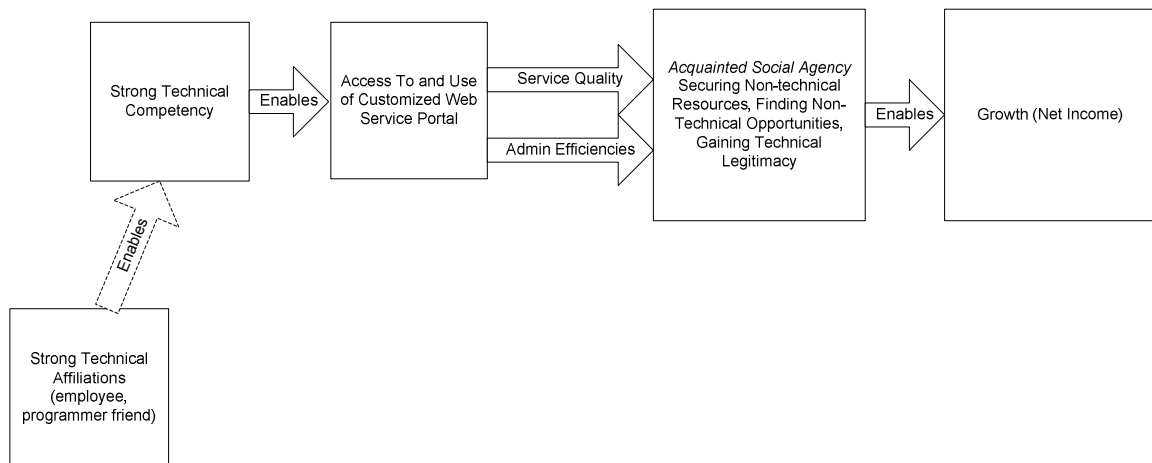
As illustrated in the figure above, AE's association with eTeams helped her gain access to administrative efficiencies, and to improve her service quality. AE leveraged these improvements to secure her affiliations and gain legitimacy.

Figure 13: Case Study 4 Analysis, Post-Intervention



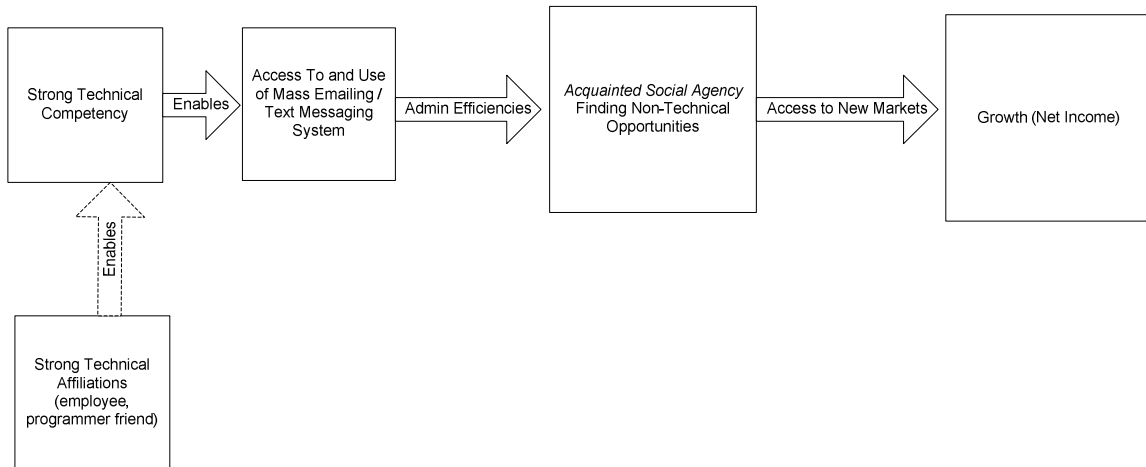
As indicated by the figure above, AE's association with a strong technical affiliate enabled her access to a blogging platform that permitted her to exercise social agency in engaging with her existing customers in a dialogue related to new services. Access to a new revenue stream from existing customers enabled TOB to enjoy some net income growth.

Figure 14: Non-Intervention Case Study 1 Analysis, Pattern A



As shown in the figure above, ES had leveraged his knowledge, and his partners (to an unclear extent, as depicted through the dashes in the arrow) to produce an interactive web portal that streamlined his entire business, providing great improvements to his service quality and administrative efficiencies that permitted him to maintain good relationships with existing customers, find new customers, and gain technical legitimacy in the eyes of a new group of technical affiliates he was cultivating.

Figure 15: Non-Intervention Case Study 1 Analysis, Pattern B

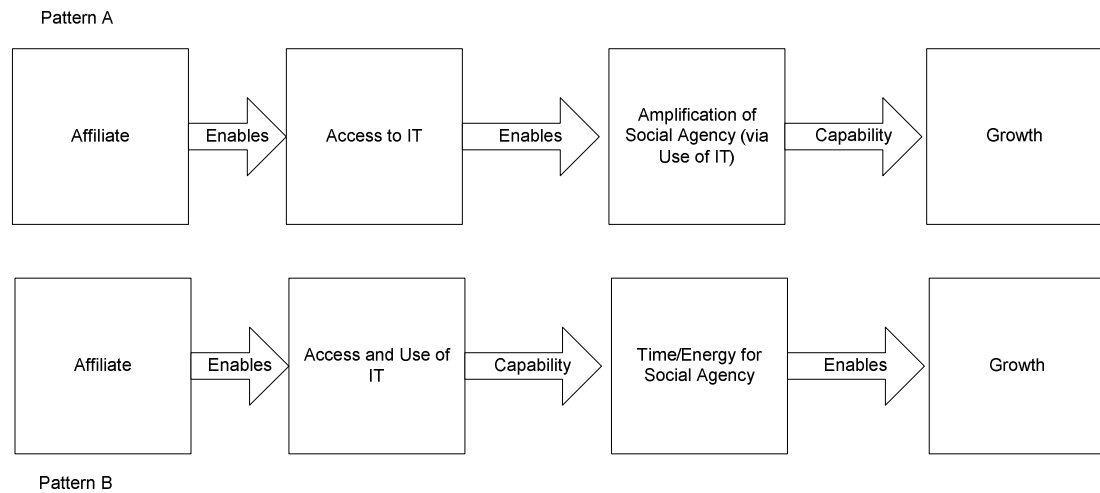


As illustrated in the Figure above, ES leveraged his knowledge, and his partners (to an unclear extent, as depicted through the dashes in the arrow), to utilize a mass messaging system that amplified his social agency, created stronger bonds with customers, and resulted in net income growth.

3. Growth through the Socially Inclusive Use of Technology

The patterns in these cases may be summarized with the phrase "Using technology in a way that draws on social capital to build social capital." In all cases, the technology is not accessible to the micro-entrepreneur unless he/she can draw upon one or more technical affiliates that have more expertise than the micro-entrepreneur. To find such affiliates requires technology-related social agency on the micro-entrepreneur's part. The system that the micro-entrepreneur creates with the aid of the affiliate(s), and thus has access to, is either a direct amplifier of his/her social agency, or it is an indirect amplifier of such, in the sense that it boosts efficiency so that the micro-entrepreneur can focus on connecting with others. These two basic variations of the "socially inclusive" pattern of access and use of technology to build capabilities that enable micro-entrepreneurs to grow their businesses are illustrated below in Figure 17.

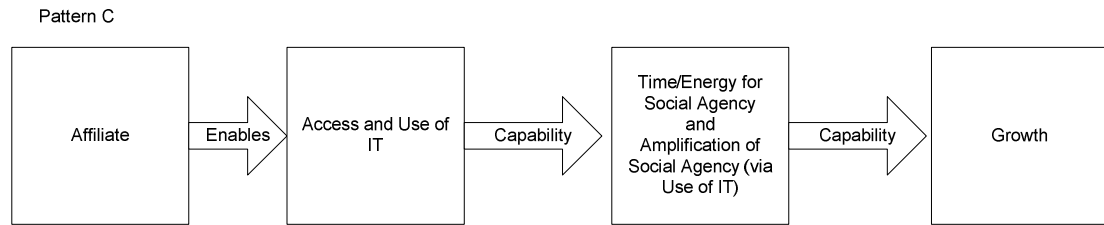
Figure 17: Socially Inclusive Patterns of Technology Access and Use (A & B)



As depicted in the figure above, in Pattern A, an affiliate enables a micro-entrepreneur to access some technology that was previously out of reach. The micro-entrepreneur uses this technology to directly enhance his/her social agency activities. This enhancement of social agency activities builds a capability that enables the micro-entrepreneur to achieve growth. In Pattern B, an affiliate enables a micro-entrepreneur to access some technology. The micro-entrepreneur's use of this technology builds a capability that permits him/her to devote more time to social agency activities such as discovering opportunities, securing resources, and gaining legitimacy. The micro-entrepreneur's increased investment in social agency activities leads to growth.

A third variation of the pattern occurs when a technology not only directly amplifies social agency, but also saves time and energy for social agency. For instance, the mass text messaging system in the BM Phone store not only permits ES to communicate with a wide variety of customers quickly, but its use also saves him time, allowing him to devote more energy to the customers in his store. This variation is indicated below in Figure 18.

Figure 18: Socially Inclusive Patterns of Technology Access and Use (Pattern C)

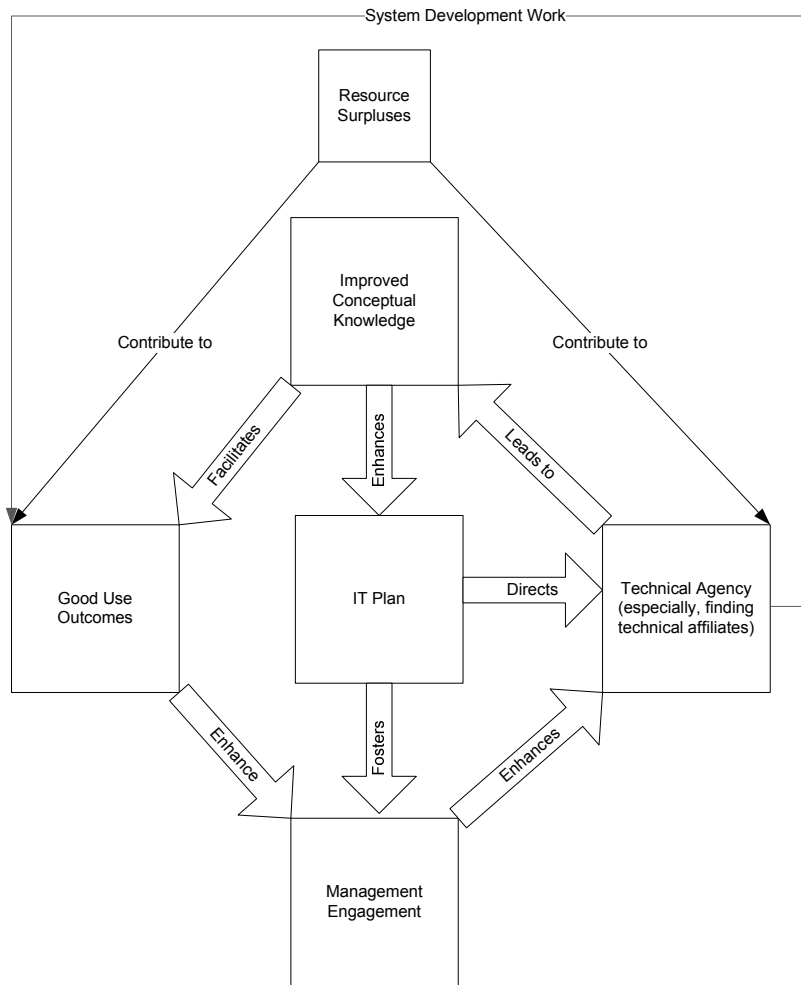


As depicted in the figure above, in Pattern C, an affiliate enables a micro-entrepreneur to access a previously inaccessible technology. The micro-entrepreneur builds a capability as a result of his use of this technology that permits him/her to spend more time focusing on social agency activities. As well, the tool directly amplifies the micro-entrepreneur's social agency. Both results of the tool's use build capabilities that lead to growth.

Together, these three patterns are termed "Socially Inclusive." Businesses that exhibited these socially inclusive patterns of IT access and use seemed to achieve an increase in net income as a result, while businesses that did not exhibit these patterns did not seem to achieve an increase in net income.

As mentioned, the patterns are all predicated on the micro-entrepreneur having good technology-related social agency, which seems to be related to his/her IT Plan, conceptual knowledge, and level of engagement. The figure below, an inversion of the 'vicious circle pattern,' depicts one possible set of relationships among these facilitating conditions.

Figure 19: Facilitating Conditions for Socially Inclusive IT Access/Use Pattern



As depicted in the virtuous circle of facilitating conditions in Figure 19, good IT Planning enhances a micro-entrepreneur’s use of IT Affiliates. These technical affiliates help the micro-entrepreneur understand technology better, and develop systems to which the micro-entrepreneur would otherwise not have access. The micro-entrepreneur tends to achieve good outcomes using technology as a result of having such a solid socio-technical and conceptual foundation, and increases his/her engagement with IT as a result. Resource surpluses are shown as a capability input that contributes to good outcomes (through the micro-entrepreneur's

ability to execute his/her plan), and to technology-related social agency (as the surpluses permit the micro-entrepreneur to hire technical affiliates as needed).

Elements of this pattern of facilitating conditions appear in all of the growth cases. They are particularly evident in Case 3 (AYS, Intervention) and Case 11 (BM Store, Non-Intervention). These micro-entrepreneurs, EN and ES, both had a good conceptual understanding of IT, that led them to form solid IT plans, choose appropriate IT affiliates, and build systems that offered their businesses substantial competitive advantages. The benefits that accrued as a result of their using IT spurred both micro-entrepreneurs to make further technology investments.

4. Community partner quotes related to the "Socially Inclusive" pattern

The reader will recall that eight community partners/stakeholders were interviewed as part of the research process. Each community partner interview seemed to reinforce aspects of the pattern, as illustrated in the synopses in the table below. In fact, most of the community partners felt that the best way to help micro-entrepreneurs was to assist them in planning and affiliating. Quotes from the community partners on a variety of different topics are included in Appendix E. Quotes related specifically to aspects of the pattern appear after the table.

Table CPRR. Main points made by community partners/stakeholders during interviews

Agency	Agent	Main Point
GB	HC	Fostering any kind of ME growth must involve helping MEs <u>pool resources</u> , including tech resources, and build <u>collaborative teams</u> [<i>reinforces importance of technical / social agency</i>]
OSBN	PW	ME growth is incremental and requires <u>continuous support</u> of basic business processes, including technology processes, until these are mastered [<i>reinforces importance of technical affiliates</i>]
SOBA, HCC	RC	Community partners are critical for long term success of MEs, individualized assistance is a key component [<i>reinforces importance of technical affiliates</i>]
GOCC	LG	MEs need to consistently engage w/ other businesses,

		tech needs to reinforce relationship building processes, not replace such; customer service is a primary differentiator <i>[reinforces importance of social acquainted approach to technology]</i>
GOCC	TC	Innovation and success driven by having the right team, and ME's need to form inter-business teams in order to succeed <i>[reinforces importance of social agency, affiliations]</i>
NBDC	AA	Solid business strategy drives tech choices; there are many tech resources and ME's need to know how to delegate effectively <i>[reinforces the importance of the IT Plan, social agency]</i>
NBDC	TM	Strategy, establishing good processes and follow-through, and teaming up with others helps differentiate successful MEs from unsuccessful MEs <i>[reinforces the importance of IT plan, affiliations]</i>
NBDC	JC	MEs need to take advantage of resources existing in community; tech is a generational issue <i>[reinforces the importance of social agency]</i>

Selected quotes from the community partners are included below. Square brackets after the speaker's initials provide information about the topic/context.

LG (GOCC) [on the role of community partner in helping build ME social capital]:

As a chamber staff person I'm trying to force people, if you will, to talk to each other. What do you do? Oh we do this kind of thing.. And what happens is maybe that one-on-one contact isn't perfect but the next contact I say you ought to talk to Carl. I just talked to a guy who does that. All of a sudden—so there's a lot of networking.

LG (GOCC) [on the importance of social agency, and the acquainted use of technology]:

So then we have some groups like tips groups which are what I would call the old school business exchange networking groups where lead but they meet once a week. So it's pretty aggressive. Of course, the social media and all the technology kinds of things—it hasn't blown that up but it helps. But still people want to talk to each other and trust each other.

LG (GOCC) [on convincing MEs to network]:

The ones that are involved really get involved and the ones that we can slow down, if you will, and get a good connection with it'll be an aha moment and they'll get it. Out of all of our members maybe a majority know what we do they sort of get what we do but they're just busy on their businesses

PW (OSBN) [on the importance of IT Planning]:

The main goal; and I think we mentioned this earlier, is to change the mindset of entrepreneurs here so that they think strategically. And I don't mean to use that word loosely, but they think about where they want to see their businesses, because as common sense as that may sound, they don't actually do that. They don't actually say, where do I see my business in a year, where do I see it in five years? And part of that involves incorporating technology into their operations

PW (OSBN) [on the power of the social acquainted approach]:

I don't think they [micro-enterprises] understand the magnitude of it. Last year we had a workshop on social networking and we probably had eleven businesses represented and only one business had used Facebook technology from that workshop and that person said they got so much business they had to turn it away.

RC (SOBA) [on the importance of IT Planning]:

We are teaching that success isn't always hard work. People are starting to understand now that in order to open a business you need a business plan. That is a great achievement, because I am sure there are still some people who took their family savings, and opened a business because they thought they could do well. But there wasn't a plan unfortunately. But that part has been improving tremendously. But one of the biggest weaknesses is that the technology part is not included yet in that plan.

HC (GB) [on social agency being the key to ME success]:

We are concerned with creating networks. And we think that this is the main thing, our members and our colleagues are the main source for transferring information

TC (GOCC) [on the importance of technical affiliations]:

What we try to do on the entrepreneurial side of small businesses is say boy you really have a technical expertise in this space. Have you ever thought about working with big companies and growing into solving that problem using that as a solution to all the base companies with that?

A lot of that social capital stuff [that we talked about] is really on the ecosystem which is where there are gaps in most communities.. there [needs to] be somebody there that there job is to connect them. Find a route between the two pockets of people.

AA (NBDC) [on the importance of planning]:

Most businesses, their passion overwhelms the vision, and their execution. And the only reason maybe they get a business plan is to get capital loan, to get cash, but I would say

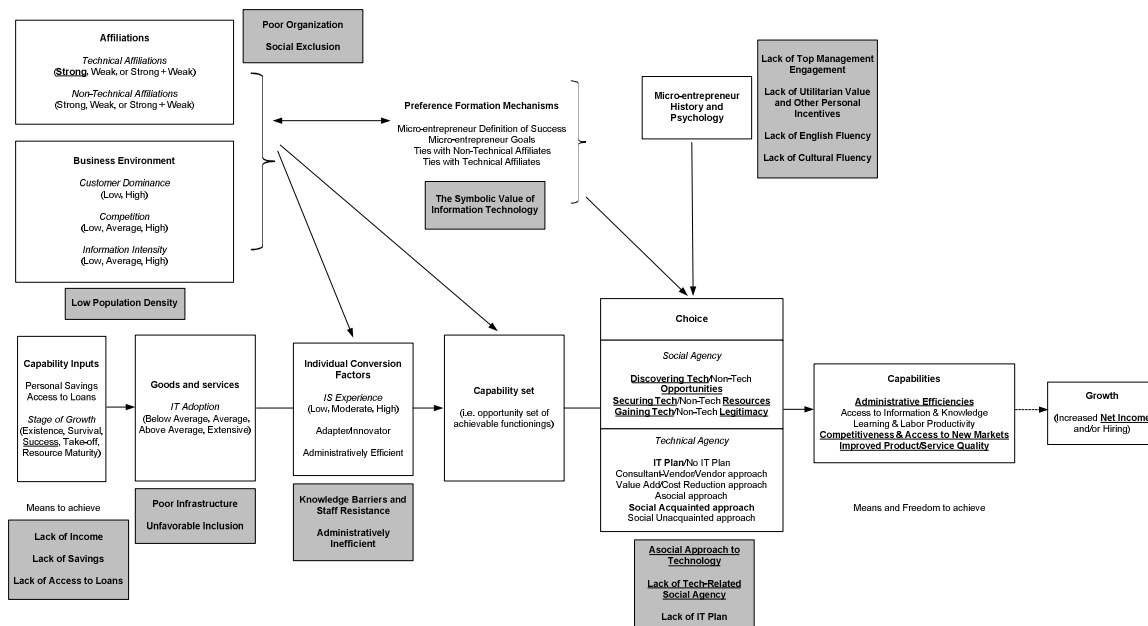
80-90% of the businesses we work with have no business plan. Or if they do have one, they haven't dusted it off in years. They are implemented on staying alive every day. And growth means that any time they get a big project, and they have to get more capital to hire more people, because the government--for example--doesn't pay up front or give seed money, so they have to go out and borrow. Well to do that, the banks say "We'd like to look at your business plan," so they go dust it off, and they're back to vision again.

Based on the interviews, it appears that the community partners understood the important role that technology can play in helping small businesses grow. The partners reinforced the findings on the importance of IT Planning, a socially acquainted approach to technology, and active technology-related social agency as facilitating conditions for the effective use of IT. Most importantly, the community partners all supported the main finding that social agency is key to growth outcomes. Indeed, most of the agencies were dedicated primarily to helping businesses establish strong ties with each other.

5. Applied Capability Perspective with Emphases and Deprivations

This study used an inductive process suggested by Robeyns (Robeyns, 2006) and Zheng (Zheng, 2009) to apply Amartya Sen's capability perspective to the micro-enterprise IT Adoption context. The analytical framework developed was then used to organize, code, and investigate patterns of IT access and use in micro-enterprise case studies. The analysis of individual case studies proceeded in the last chapter (*Results/Analysis*). The analysis of multiple case studies, aggregated based on growth outcomes, occurred in this chapter. The multiple case analysis indicated that certain concepts in the model had more bearing on growth outcomes than others. A redrawn model, emphasizing the important factors, and key deprivations, is rendered below and (at full size) in Appendix D.

Figure 20: Updated Analytical Framework Applied to an Investigation of IT Access and Use in Micro-enterprises



The revised figure underlines and bolds the growth-related concepts identified as most important during the study. As well, it presents deprivations relevant to each area of the applied model in gray boxes directly below or to the right of each capability category box.

As depicted in the framework, a micro-entrepreneur converts his/her *Capability Inputs* (savings, enterprise functionings) and *Goods and Services* into a *Capability Set* through the application of his/her conversion factors, that include his/her technical experience and level of innovativeness. Micro-enterprises that are at the 'Success' stage of growth enjoy an advantage over micro-enterprises at prior stages of growth. A lack of income, savings, and/or access to loans may impair the micro-entrepreneur's access to goods and services. A lack of functioning infrastructure and/or a choice of high cost/low benefit technology goods/services may hinder the micro-entrepreneur's attempt to convert goods and services into capabilities. Similarly, micro-entrepreneurs that lack knowledge or are resistant to technology, and/or individuals that are administratively inefficient may be less able to convert IT into capabilities than others.

The micro-entrepreneur then exercises social and technical agency (*Choice*) to enable capabilities that may lead to *Growth* (increased net income and hiring) outcomes. Enabling Administrative Efficiencies, Access to New Markets, and Improved Product/Service Quality seems to be linked to growth outcomes. Note that, in this study, the use of technology only improved net income generation. Micro-entrepreneurs that took an asocial approach to technology, who exhibited a lack of technology-related social agency, and/or who did not develop an appropriate IT plan, faced great difficulty building capabilities to grow their businesses.

In the framework, the micro-entrepreneur's choice and conversion processes are moderated by environmental factors, including his/her affiliations, and his/her business environment. Micro-entrepreneurs who lacked access to day to day technical support, and/or who lacked social ties faced challenges building capabilities as they needed partners to grow in both technical and non-technical capacities. Lack of a strong technical affiliate proved to be particularly devastating to micro-entrepreneurs; many had a great need for a technical adviser, due to having low to moderate IS experience themselves. Micro-entrepreneurs in several niche markets in this study faced a business environment challenge associated with Nebraska (Low Population Density), that impeded their ability to reach/attract customers.

The figure does, of course, represent a static view of Sen's perspective. As indicated previously, the "Socially Inclusive" pattern of technology of access and use involves a dynamic interaction among the concepts represented within the choice and capabilities boxes in the diagram.

Prior IT Adoption research has tended to take a view focused solely on the individual adopter and his/her characteristics and attitudes (Venkatesh, et al., 2003). In fact, this

dissertation has suggested that, for micro-enterprises, adoption is a choice implicating human, social, and economic components. From the human standpoint, the micro-entrepreneur must be knowledgeable enough to choose a technology direction. From the economic standpoint, he/she must be able to afford basic IT infrastructure. From the social standpoint, he/she must find and rely upon affiliates to provide training and development assistance. Compared to an organization, where many technical resources may be easily accessible (Straub, 2009) a micro-enterprise exists in an uncertain and dynamic environment (Duncombe & Heeks, 2002). This uncertainty and dynamism makes the micro-entrepreneur's social agency particularly critical in determining outcomes. If the micro-entrepreneur is adept at finding technical affiliates, then he/she may be more effective at achieving growth using technology. Understanding the community and environment in which the micro-entrepreneur exists, gauging the micro-entrepreneur's strong and weak ties, and understanding the micro-entrepreneur's social agency are all crucial to assessing whether he/she will succeed (Vargas, 2000). In fact, it has been suggested that available social capital has a multiplier effect on micro-entrepreneurial income (Honig, 1998).

In this study, micro-entrepreneurs that took steps to socially engage with their customers via electronic means achieved an increase in net income. A number of studies have suggested that blogs, electronic social networking, and email communication are an effective way to connect people (Miyata & Kobayashi, 2008) (Ko & Kuo, 2009). Digital communications are associated with the building of bridging and linking social capital, which has been associated with positive economic effects (Sabatini, 2008). As technological means of communication become increasingly embedded in society, expected and even required by consumers, they are becoming a fundamental capability of micro-enterprises, the deprivation of which threatens growth outcomes. As Zheng puts it: "Very often ICT is primarily considered as a production

tool.. This is a perspective which remains narrowly focused on the functionings of individuals. If capabilities of people are the ultimate concern.. then social inclusion and the ability to participate in e-society automatically become primary issues" (Zheng & Walsham, 2008).

6. Conclusion

This chapter proceeded in six steps. In the first step, the key issues and deprivations associated with micro-enterprises that did not grow as a result of using technology were placed alongside each other. Discussion of the commonalities and differences among these micro-enterprises was introduced and a vicious circle pattern related to the concepts identified in the discussion was presented. In the second step, key properties and behaviors of micro-enterprises that grew as a result of using technology were aggregated. Discussion of the commonalities and differences among these micro-enterprises was introduced. In the third step, a pattern related to the concepts identified in the discussion was elaborated and the pattern's facilitating conditions were also suggested. In the fourth step, community partner quotes were triangulated with concepts from the pattern. In the fifth step, a revised figure was presented, that emphasized the findings related to the pattern and the vicious circle pattern. The figure was explained in detail and related to the literature. The next and final chapter highlights the contributions of the research and concludes the dissertation.

Chapter 7 : Summary, Conclusion and Contributions

Introduction

In its 2011 review of economic data from the Bureau of Labor and Statistics and other sources, the Association for Enterprise Opportunity (AEO) determined that Micro-enterprises (businesses with one to five employees) now constitute 88% of all US Businesses, or 25.5 million of 29 million total businesses, and that the rate at which micro-enterprises are being founded is at a fifteen year high. Furthermore, the AEO calculated that "if just one in three micro-enterprises hired a single employee, the US would be at full employment" (AEO, 2011). At a time when employment opportunities at large companies are being cut back, micro-enterprises have the potential to create jobs and income that can anchor communities, facilitate the diffusion of useful skills, and even serve as the basis for a new wave of industrialization in the developed world (Gillard, et al., 2007) (Hollifield & Donnermeyer, 2003) (Grosh & Somolekae, 1996). If they are to expand and fuel economic growth, micro-enterprises must capture the gains in productivity, administrative efficiencies, access to markets, and access to knowledge that technology has offered larger businesses (Kosempel, 2007) (Dewan & Kraemer, 2000) (Barua, et al., 2004) (Qureshi, 2005).

Technology adoption would appear to have great potential to increase income and hiring within these businesses (Norris, 2002) (Qureshi, 2005) but so far has been very limited (Qiang, et al., 2006) for reasons that clearly extend beyond existing IT Adoption theories (Wolcott, et al., 2007) (Vargas, 2000). Attempts to utilize technology adoption theories in

isolation to 'optimize' development have often resulted in both poor adoption and poor development outcomes in the micro-enterprise context (Warschauer, 2003). Key gaps in technology adoption theories have emerged as these (the theories) have been applied to micro-enterprises. The gaps stem from two factors: a misalignment between the coverage of technology adoption theories and the normative goals of development research, and a misalignment between the formal organizational unit of analysis in adoption theories and the community context in which micro-entrepreneurs actually operate.

IT for development research, while offering the potential to address these gaps, has failed to do so for two reasons: First, because it has focused on micro-enterprises in the developing world (Brown & Grant, 2010), which face distinct challenges from micro-enterprises in the developed world (Schreiner & Woller, 2003). Second, because the research's generalizability has been limited by its weak ties to both IT and development theory (Heeks, 2007). As Vargas points out, theorizing the context of micro-enterprises *matters*: "fostering growth in micro-enterprises .. requires [understanding] the integration of modern technology .. individual initiative and collective effort and a genuine focus on sustainability through a balance of economic, social, and environmental concerns" (Vargas, 2000).

This dissertation sought to address the key gaps in the literature through the use of the capability perspective to structure the analysis of the ties among known concepts from the IS/IT and IT for Development literature and the social (community-oriented), human, and economic conditions faced by micro-entrepreneurs in the developed world. Framing growth as net income and hiring in light of community concerns, as micro-enterprises have shown the potential to bolster communities through income generation and hiring (Servon & Doshna, 2000), it

investigated the research question: *What patterns of technology access and use build capabilities that enable micro-entrepreneurs to grow their businesses?*

To answer the research question, the dissertation inductively developed a lens, an analytical framework based on Sen but specified for the micro-enterprise IT Adoption context. It employed this analytical framework to organize the presentation and analysis of data from twelve case studies and eight community partner/stakeholder interviews. Using techniques suggested by Robeyns (Robeyns, 2006) and Zheng (Zheng, 2009), the analysis proceeded in two sub-steps, generalizing from description to theory (Lee & Baskerville, 2003). The first sub-step involved detailed individual case analyses. The second sub-step involved cross-case analysis. The result of this analysis was the identification of a growth-related pattern of technology access and use described as "socially inclusive." This pattern, detailed in Chapter 6, involved micro-entrepreneurs' use of technology in a way that drew on social capital to build social capital.

Contributions to Theory

The primary contribution of this research was the development of an analytical framework that qualitatively applied the capability perspective to the micro-enterprise IT Adoption context. It is difficult to overstate how rare this kind of application is. Almost all extant studies treat Sen quantitatively and consider functionings to the exclusion of capabilities (James, 2005; Thomas & Parayil, 2008). Moreover, most applications of Sen have included only a small number of concepts drawn from a single field (Robeyns, 2005) (Robeyns, 2006) (Gasper, 1997) (Alkire, 2002). This study draws together sixty codes covering more than twenty discrete concepts, from two separate fields (IS and IT for Development) in ten different categories of interest. The framework is broad enough to be usable by other researchers in other contexts, and deep enough (as evidenced by the cross-case analysis) to drive interesting insights via its

"sensitizing concepts" (Zheng, 2009). Moreover, the framework's normative assumptions about development as freedom and its consideration of social context render it appropriate for use in the IT for Development area, unlike 'pure' IT Adoption theories from the IS field (Vargas, 2000) (Warschauer, 2003). The study's methodology, involving the rigorous organization and coding of the cases along multiple dimensions may be employed by others to increase the comparability of case studies in the IT for Development area, which has been lacking (Heeks, 2007).

The secondary theoretical contribution of the dissertation lies in its analysis of growth-related patterns of IT access and use by micro-enterprises. The pattern uncovered by this investigation may be tested, revised, and expanded upon by other researchers. It is consequential not only for development researchers, but also to aid workers, micro-enterprises themselves, for-profit and non-profit companies and associations serving micro-enterprises, and governmental organizations (AEO, 2011).

For some time, the capability perspective's potential to serve as an organizing framework for theory generation has been recognized by the IT for Development community (United_Nations, 2009). Unfortunately, it has not been widely adopted in qualitative research because its specification for a given context was considered extraordinarily difficult and labor intensive (Robeyns, 2006) (Alkire, 2002). This dissertation undertook the work to specify the framework for the micro-enterprise IT Adoption context. It offers researchers a powerful new toolkit, as well a set of unique insights based on the toolkit's first application.

Contributions to Practice

As discussed in the introduction, the perspective that one takes when initiating a development intervention makes a great deal of difference. Studies in the vein of modernization

may cause one to focus on the IT Artifact at the expense of human and social concerns, for example. An applied capability perspective, on the other hand, offers great promise in that it accounts for context, focuses on well being, and inherently aligns with community goals. Capability style interventions have been more successful than other types of interventions (Avgerou, et al., 2009; Cecchini & Scott, 2003).

Sen's work fits well with a particular stream of the IS literature, the *Ensemble* view of technology. This view surrounds an IT Artifact with the resources, "commitments..training, skilled staff and support services and development of organizational arrangements, policies, and incentives" to enable it to be used effectively (Orlikowski & Iacono, 2001, p. 125). In particular, it has been argued that the "Technology as Embedded System" viewpoint is the most appropriate view to take for "ICT *for* Development" and "ICT Directed at Specific Development Sectors or Projects." As Orlikowski's description puts it, "The conceptualization of technology...is that of an evolving system embedded in a complex and dynamic social context. Technology is neither an independent nor dependent variable but instead is seen to be enmeshed with the conditions of its use...[there is] a focus on better understanding how technologies come to be used in particular ways..how different groups engage with technology" (Orlikowski & Iacono, 2001, p. 127).

This dissertation's application of Sen's perspective offers a frame that, unlike the technology adoption models of the literature, can help the practitioner understand how patterns of technology access and use relate to individuals' context and goals. Investigation of micro-enterprises through this analytical framework will facilitate the generation of theory *by* IT practitioners that can be of use *to* IT practitioners; insights gleaned through the application of

the framework may also suggest the most impactful interventions under complex circumstances.

Policy Significance

It is clear that developed countries have a strategic interest in reducing community-based divides by fostering the growth of micro-enterprises: jobs created by micro-enterprises appear to be more stable, and have greater 'multiplier' effects than jobs created by large firms (Servon & Doshna, 2000). Recent efforts in Germany have investigated the possibility of matching University students with local companies in order to facilitate bi-directional knowledge transfer as a means of facilitating development (Rohde, Klamma, Jarke, & Wulf, 2007). Similar technology transfer programs exist around Universities in the US (Fisher, Fabricant, & Simmons, 2004), but have not yet produced the kind of quantifiable impact hoped for (Nagle, 2007). Generally, micro-enterprise development programs in the US are haphazardly distributed and poorly run (Schreiner 2003).

This research has contributed to the discussion by suggesting that micro-entrepreneurs benefit greatly from having a strong technical affiliate, but it also poses a conundrum for policy makers: if micro-entrepreneurial *agency* is a key determinate of technology-related growth outcomes, should technology-focused development programs be funded at all? In fact, portions of this dissertation (particularly the post-intervention patterns of access and use) appear to suggest that social and technical agency are trainable skills, that can be effectively transmitted by a government funded technical affiliate. While the ultimate form of a larger scale program may be for policy researchers/makers to produce, it is reasonable to expect that any effort can be benchmarked against the type of interventions undertaken in this research.

Limitations

Any qualitative study involves a great deal of subjectivity (Patton, 2002). Although great efforts were made to select illustrative cases along different dimensions, and to rigorously code for diverse concepts across the range of categories described by Sen, there are undoubtedly many relevant concepts and relationships yet to be discovered. The generalizations from description to theory in this study, as Lee and Baskerville eloquently put it, constitute "well-founded but as-yet untested hypotheses." And it is in the nature of a single study that the findings apply only to the sample; there is no way to know *a priori* whether the sample is representative of the population of interest, micro-enterprises in the developed world (Lee & Baskerville, 2003). As well, in the intervention cases, it is possible that some variance in the outcomes may be due to the researcher's behavior, rather than the interventions chosen, or the participants' actions; the study of post-intervention behaviors and non-intervention cases helps mitigate this problem, but cannot eradicate it.

Future Research

Still, the concepts chosen, and the resulting insights and interpretation offered are intriguing and constitute a substantial "head start" for researchers attempting to apply Sen's capability perspective in this context; it is hoped that papers arising out of the dissertation will encourage deeper investigation of the IT Adoption context. There are three promising ways in which this research might be advanced: through testing and refining the framework concepts and categories, through production of a quantitative version of the framework, and/or through domain specific studies directed at both investigating and making the "socially inclusive" pattern consumable by practitioners and policy makers.

Testing and refining the applied framework could be accomplished through application of the dissertation's methodology to intervention and non-intervention cases throughout the developed world. Researchers could use the framework concepts as a starting point, but could also enrich the framework with concepts from other disciplines, as envisioned by Heeks (Heeks 2007). Additionally, the framework's relevance to related but distinct situations (such as that of the funded startup) could be investigated.

As mentioned, most applications of Sen are quantitative; it would be possible to create a quantitative version of this framework as well. A quantitative survey instrument could be used as a supplement to the qualitative information gleaned in intervention case studies, or as a replacement for it in the context of a large scale study. Furthermore, use of a quantitative version of the framework would make it accessible via such techniques as structural equation modeling, that might offer deep insights into term interactions among different categories and concepts.

Finally, "the socially inclusive" pattern is amenable to further research and use by researchers from both IT for Development and other disciplines, due to the fact that, though it was produced using an application of Sen's model, the pattern stands on its own and requires very few normative assumptions. Particularly, researchers in the area of communication might be interested in applying a different set of conceptual lenses to analyze the agency component of the pattern, specifying the pattern itself more fully, and making it teachable (accessible) to micro-entrepreneurs and policy makers.

Summary/Conclusion

This research used a qualitative inductive multiple case study methodology to apply Amartya Sen's capability perspective to the micro-enterprise context, to investigate how

technology access and use may build the kinds of capabilities micro-enterprises need to grow their businesses. Five of twelve micro-enterprises (approximately forty-two percent) in the study appeared to grow as a result of using technology in a "socially inclusive" way. The latter pattern, and the framework developed to produce it, constitute a strong theoretical contribution that is likely to be of interest to researchers and development practitioners alike.

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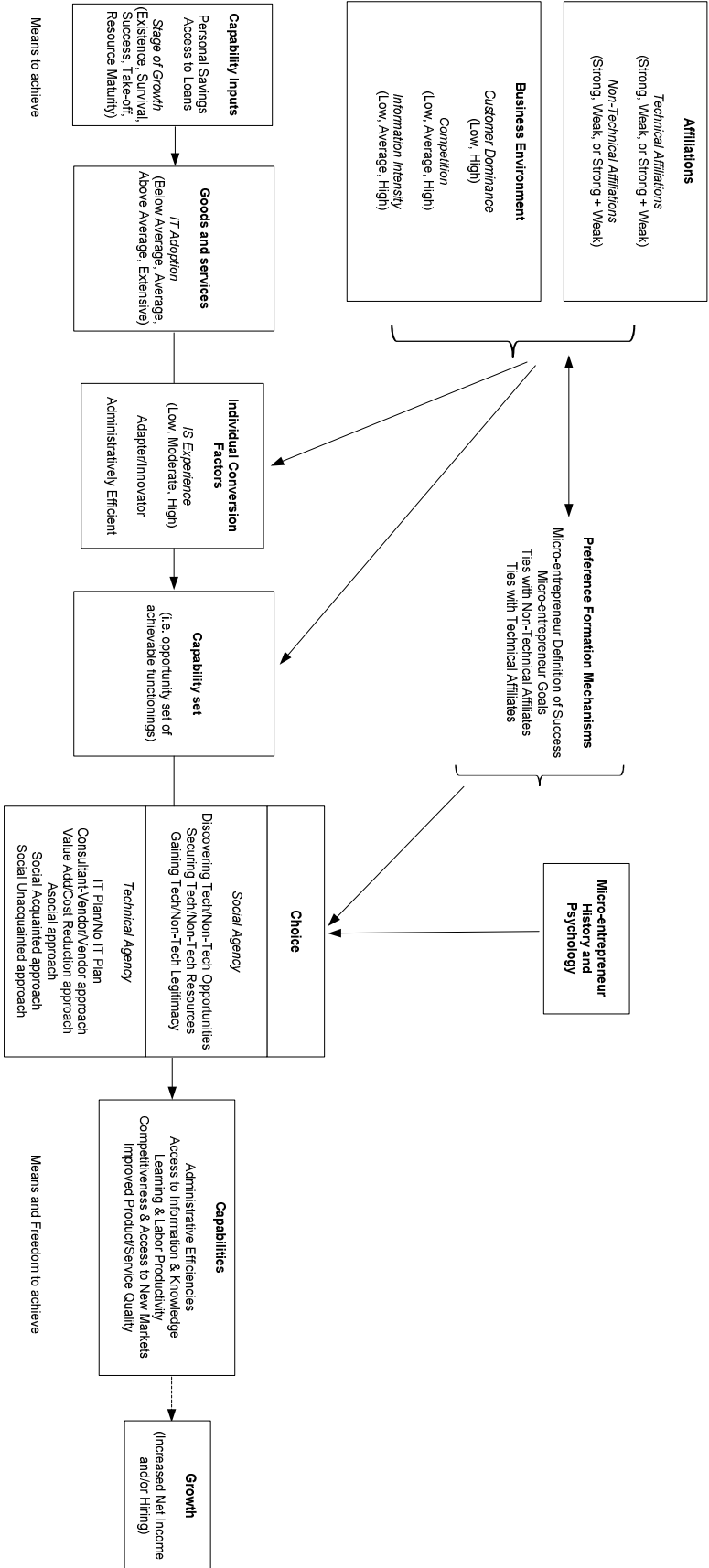
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**Appendix A: Analytical Framework
Applied to an Investigation of IT
Access and Use in Micro-enterprises
(Figure 2)**



Appendix B: Coding Scheme for Case Studies

Concept Area / Source(s)	Code	Definition
Deprivations / Wolcott, et al., 2007, Furuholt & Orvik, 2006	<i>Lack of Top Management Engagement</i>	Associated with a micro-entrepreneur's lack of willingness to learn or use IT independently, and a lack of confidence
Deprivations / Wolcott, et al., 2007, Furuholt & Orvik, 2006	<i>Knowledge Barriers and Staff Resistance</i>	Associated with a lack of time to learn new technology and a high level of frustration with technology
Deprivations / Wolcott, et al., 2007, Furuholt & Orvik, 2006	<i>Lack of Utilitarian Value and Other Personal Incentives</i>	Associated with a micro-entrepreneur failing to see the value in a technology, as it related to his/her goals
Deprivations / Wolcott, et al., 2007, Furuholt & Orvik, 2006	<i>The Symbolic Value of Information Technology</i>	Associated with a micro-entrepreneur's acquiring technology in order to appear technologically competent, but then being unable to exploit the technology's practical value
Deprivations / Wolcott, et al., 2007, Furuholt & Orvik, 2006	<i>Poor Organization</i>	Associated with a micro-entrepreneur's inability to call upon IT support services to provide consistent technology support for any IT problems that may arise
Deprivations / Qureshi, 2005	<i>Administratively Inefficient</i>	Applies to micro-enterprises that suffer from high overhead due to excessive reliance on paper processes, or inefficient use of technology in day-to-day work
Deprivations / Zheng & Walsham, 2008	<i>Social Exclusion</i>	Refers to a micro-entrepreneur's inability to connect to individuals, communities, or community partner

		organizations that might be helpful to the micro-entrepreneur as he/she attempts to grow his/her business
Deprivations / Zheng & Walsham, 2008	<i>Unfavorable Inclusion</i>	Refers to IT being used in a way that imposes high work burdens with limited benefits in relation to the goals of the micro-entrepreneur
Deprivations / Sen, 1999	<i>Lack of Income</i>	Refers to a micro-entrepreneur not receiving what he/she deems to be sufficient net income from his/her business
Deprivations / Grosh & Somolekae, 1996	<i>Lack of Access to Loans</i>	Refers to a micro-entrepreneur's inability to get bank loans, for whatever reason(s)
Deprivations / Grosh & Somolekae, 1996	<i>Lack of Savings</i>	Refers to a micro-entrepreneur not having what he/she deems to be savings sufficient for his/her business
Deprivations / Kilkenny, 2010 & Bartik, 1989	<i>Low Population Density</i>	Refers to conditions in which it is difficult for a micro-entrepreneur to reach his/her customers due to the population being thinly distributed
Capabilities / Qureshi, 2005	<i>Access to Information, Knowledge, and Expertise</i>	Refers to the freedom of micro-entrepreneurs to discover previously inaccessible information to aid in decision making activities
Capabilities / Qureshi, 2005	<i>Competitiveness and Access to New Markets</i>	Refers to the freedom of micro-entrepreneurs to reach new customers via, for instance, web advertising, social networking, or other methods of communication
Capabilities / Qureshi, 2005	<i>Administrative Efficiencies, Administratively Efficient</i>	Refers to the freedom of micro-entrepreneurs to maintain day-to-day operations efficiently
Capabilities / Qureshi, 2005	<i>Learning and Labor Productivity</i>	Refers to the freedom of micro-entrepreneurs to use IT to learn about innovations which they can then adopt accomplish more in terms of their core functions
Capabilities / Pilot Study	<i>Improved Product and/or Service Quality</i>	Refers to the freedom of a micro-entrepreneur to offer improved products or service to his/her clients

		as a result of the use of IT
Capability Inputs / Churchill & Lewis, 1983	<i>Existence</i>	Refers to a stage of growth in which it is unclear whether or not the business can get customers or deliver a product or service. The key issue in this stage is a lack of money and/or other resources needed to market the business and/or develop the product or service
Capability Inputs / Churchill & Lewis, 1983	<i>Survival</i>	Refers to a stage of growth in which "the business has demonstrated that it is a workable business entity. It has enough customers and satisfies them sufficiently with its products or services to keep them." The key issues at this stage are whether the business can cover the cost of replacing its capital assets as these wear out, and whether the business can earn a profit
Capability Inputs / Churchill & Lewis, 1983	<i>Success</i>	Refers to a stage of growth in which the business is stable and profits are predictable. The key issue at this stage is whether the business owner wishes to reinvest the profits of the business to grow it further, or "completely or partially disengage.. to pursue hobbies and other outside interests while maintaining the business more or less in the status quo."
Capability Inputs / Churchill & Lewis, 1983	<i>Take-off</i>	Refers to a stage of growth in which the business owner is hiring more employees and investing significant cash resources in the business. The key issues at this stage or whether the business owner can effectively delegate to others, and whether or not he/she has enough cash to meet the capital demands of hiring, advertising, etc. that come with expansion
Capability Inputs / Churchill & Lewis, 1983	<i>Resource Maturity</i>	Refers to a business that has gone through rapid growth, hired a significant number of employees, and is now seeking to gain efficiencies and optimize its strategy. The key issue is whether or not the expanded business can "preserve its entrepreneurial spirit" and continue to innovate and take risks

Outcomes / Qiang, et al., 2006 & AEO, 2011 & Servon & Doshna, 2000)	<i>Growth</i>	Defined in terms of net income and hiring because the study is framed in light of community concerns, and micro-enterprises have shown the potential to bolster communities through income generation and hiring (Servon & Doshna, 2000). As noted in the introduction, the AEO calculated that "if just one in three micro-enterprises hired a single employee, the US would be at full employment" (AEO, 2011)
Goods and Services / Thong, 1999	<i>Average IT Adoption</i>	Refers to a micro-entrepreneurial situation in which the micro-entrepreneur uses one computer, an office productivity suite, an accounting application, and an internet browser
Goods and Services / Thong, 1999	<i>Below Average IT Adoption</i>	Refers to any adoption level below Average IT Adoption
Goods and Services / Thong, 1999	<i>Above Average IT Adoption</i>	Refers to micro-enterprises that exhibit Average IT Adoption but which also use one or more domain specific applications or databases
Goods and Services / Thong, 1999	<i>Extensive IT Adoption</i>	Refers to micro-enterprises that, in addition to exhibiting Above Average IT Adoption, use software programs specifically developed by contractors for their (the micro-enterprises') businesses
Individual Conversion Factors / Thong, 1999	<i>High IS Experience</i>	Coded if a micro-entrepreneur has attended more than two computer classes, uses a computer at home and at work, and/or has one or more certifications associated with computer or software use or was able to use a sophisticated domain specific program such as AutoCad
Individual Conversion Factors / Thong, 1999	<i>Moderate IS Experience</i>	Coded if a micro-entrepreneur attended two or more computer classes (or equivalent), and uses a computer at home and at work
Individual Conversion Factors /	<i>Low IS Experience</i>	Coded if a micro-entrepreneur has had one or no computer classes, and/or uses a computer in only one

Thong, 1999		location
Individual Conversion Factors / Thong, 1999	<i>Adapter</i>	Coded if a micro-entrepreneur expresses technology goals that are efficiency and productivity oriented, or which are related to achieved functionings typical of other small businesses (e.g., use of a website to represent the business online)
Individual Conversion Factors / Thong, 1999	<i>Innovator</i>	Coded if a micro-entrepreneur expresses a desire to use technology to transform his or her business processes, or describes technology goals or achieved functionings that are very atypical compared to the those of other micro-entrepreneurs in the study
Micro-enterprise Business Environment / Thong, 1999	<i>High Information Intensity</i>	Coded if the micro-enterprise's business model is primarily related to the provision of information to customers
Micro-enterprise Business Environment / Thong, 1999	<i>Average Information Intensity</i>	Coded if the micro-enterprise's business model involves ongoing product or service research to dynamically adapt to customer demands
Micro-enterprise Business Environment / Thong, 1999	<i>Low Information Intensity</i>	Coded if the micro-enterprise's business model does not involve ongoing product or service research and/or if the products or services offered by the micro-enterprise are essentially static
Micro-enterprise Business Environment / Thong, 1999	<i>High Competition</i>	Refers to a situation in which a micro-enterprise has many competitors offering similar products and services and/or the customer can easily switch and/or other products/services may be easily substituted by the consumer for those provided by other micro-enterprises
Micro-enterprise Business Environment / Thong, 1999	<i>Average Competition</i>	Refers to a situation in which a micro-enterprise has few direct competitors (perhaps because the micro-enterprise occupies a very well-defined niche) but the customer could switch to one of these competitors relatively easily, and/or substitute another good or service for the micro-enterprise's product relatively

		easily
Micro-enterprise Business Environment / Thong, 1999	<i>Low Competition</i>	Refers to a situation in which a micro-enterprise has no direct competitors and the customer cannot switch to another provider of the unique product/services that the micro-enterprise offers, although there may be goods or services that the customer can substitute for the micro-entrepreneur's goods or services relatively easily
Micro-enterprise Business Environment / Levy, et al., 2001, 2002	<i>High Customer Dominance</i>	Refers to micro-enterprises that have a small number of customers
Micro-enterprise Business Environment / Levy, et al., 2001, 2002	<i>Low Customer Dominance</i>	Refers to micro-enterprises that have a large number of customers
Social Context: Affiliations / Good	<i>Technical Affiliations</i>	Refers to those social resources that the micro-entrepreneur exploits for technical services and support
Social Context: Affiliations / Good	<i>Non-Technical Affiliations</i>	Refers to those social resources from which a micro-entrepreneur may draw non-technical support
Social Context: Affiliations / Elfring & Hulsink, 2003	<i>Strong ties</i>	Defined as affiliations the micro-enterprise maintains over a long period, with frequent and regular contact, that involve a significant exchange of information and resources among the parties involved
Social Context: Affiliations / Elfring & Hulsink, 2003	<i>Weak ties</i>	Refers to ties that are not strong ties, and/or ties that are short term in nature, and involve minimal resource exchange, although novel information may be exchanged among the parties
Choice: Social Agency / Elfring & Hulsink, 2003	<i>Discovering Opportunities</i>	Describes a situation in which a micro-entrepreneur is employing his/her affiliates as a "source of new ideas" and "to locate and evaluate opportunities... ranging from potential markets for goods and services to innovations and promising new business

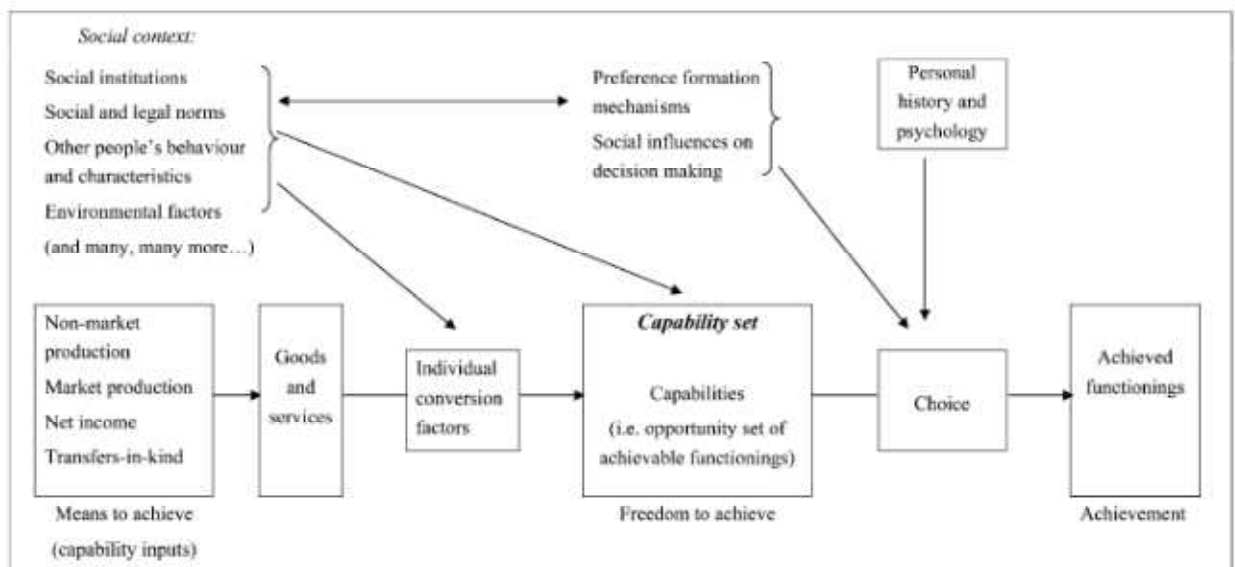
		practices"
Choice: Social Agency / Elfring & Hulsink, 2003	<i>Securing Resources</i>	Describes a situation in which a micro-entrepreneur is using his/her affiliates to "access, mobilize and deploy resources... [such as] financial and human capital.. production know-how.. distribution channels"
Choice: Social Agency / Elfring & Hulsink, 2003	<i>Obtaining Legitimacy</i>	Describes a situation in which a micro-entrepreneur is using his/her affiliates to "organize institutional support and legitimacy..obtain a prestigious business affiliate..[establish] the venture as appropriate and conforming to accepted rules and standards"
Choice: Technical Agency / Thong, et al., 1994	<i>Vendor-only</i>	Coded if a micro-entrepreneur uses a single vendor to both develop the requirements for a system and implement it
Choice: Technical Agency / Thong, et al., 1994	<i>Consultant-vendor</i>	Coded if the micro-entrepreneur employs a vendor/consultant to help develop requirements, and another vendor to implement requirements
Choice: Technical Agency / Zhao, 2006	<i>Asocial</i>	Code is applied to micro-enterprise technology activities that do not involve contact with other people
Choice: Technical Agency / Zhao, 2006	<i>Social Acquainted</i>	Code is applied to micro-enterprise technology activities that involve a micro-enterprise's contact with individuals with whom the micro-enterprise has had some previous contact
Choice: Technical Agency / Zhao, 2006	<i>Unacquainted</i>	Code is applied to micro-enterprise technology activities that involve a micro-enterprise's contact with individuals with whom the micro-enterprise has had no previous contact
Choice: Technical Agency / Cragg & King, 1993 & Bergeron, Raymond, & Rivard, 2004	<i>IT Plan</i>	Coded if a micro-entrepreneur can articulate a connection between his/her business strategy and his/her use of IT, or demonstrates via actions that he/she has done so

Choice: Technical Agency / Cragg & King, 1993 & Bergeron, Raymond, & Rivard, 2004	<i>No IT Plan</i>	Coded if a micro-entrepreneur cannot articulate a connection between his/her business strategy and his/her use of IT, or demonstrates via actions that he/she has not done so
Choice: Technical Agency / Levy, et al., 2001	<i>Cost Reduction</i>	Coded if a micro-entrepreneur's goals/functionings appeared to be primarily associated with using IT to reduce costs and overhead
Choice: Technical Agency / Levy, et al., 2001	<i>Value Added</i>	Coded if the micro-entrepreneur's goals/functionings appeared to be primarily associated with using IT to add value to the business

APPENDIX C: Semi-structured Interview Guide (Topic Areas, specific questions to be employed as needed)

Informed Consent Statement (to be orally conveyed and digitally tape recorded)

Hello, my name is Travis Good. This interview is part of a research study that we are carrying out to assist micro-entrepreneurs in using Information Technology to Access and Use technology to build capabilities to grow their businesses. This study has been reviewed and approved by the UNMC IRB and assigned an IRB # 107-11-EX. In order to build a picture of how IT access and use can enable micro-enterprises to access and use technology effectively, we would like to ask you some questions. Your participation is voluntary, and you are not required to answer any of the questions. The interview will take approximately an hour and a half to complete. We will use the answers from the interview to identify ways in which we might be able to provide assistance to communities like yours. The identity of your business will not be anonymous but will remain confidential. We will not distribute the information we collect to third parties. The identity of your business will be retained to facilitate the conduct of future interviews and or to allow us to provide you with services in the future. Would you like to participate in this interview?



Instrument [All Groups Means/Ends Questions]

General/Open Questions for Small Businesses (all categories):

1. Please tell me a bit about yourself. [Preference formation, value system, Robeyns]
2. What are your goals? How did you come up with these goals? [Personal history and psychology, Robeyns]

3. What is your personal philosophy? [Personal history and psychology, Robeyns]
4. How do you define 'success' ? Has your definition of success changed over time? If so, how? [Personal history and psychology, Robeyns]
5. Why did you want to start your own business? [Personal history and psychology, Robeyns]
6. Could you tell me about the community in which your business operates? What kind of customers are you targeting? How did you decide to serve this particular market? [Social context, Robeyns]
7. What has the business environment been like for you? Do you feel like our local government or community groups have been good partners for your business? Do you feel like businesses in your area are over-regulated, under-regulated, or regulated just enough? [Social context, Robeyns]
8. Do you think it is easier for a small business or a larger business to operate within the law? Why or why not? [Means to achieve, social context, Robeyns]
9. Could you tell me about your process for making business decisions? Do you make decisions by yourself or are you influenced by other people? Has your decision making process changed over time? [Choice, preference formation, Robeyns]
10. How does your business make money, primarily? What goods and services do you provide? [Goods and Services, Robeyns]
11. What kinds of raw materials do you need to use to provide these goods and services? [Capability inputs, Robeyns]
12. What kind of labor is required for you to provide these goods and services [Capability inputs]
13. How do you fund operations? Do you take out loans? Could you describe your experience working with the local banking and financial system? Has that experience changed over time? [Means to achieve, Robeyns]
14. What is the most challenging part of running your business? Why that so challenging? Have your challenges changed over time? [Deprivations, Sen]
15. What achievements are you most proud of, with respect to your business? [Achieved functionings, Sen]
16. What do you wish you had achieved, but have not? What do you think it would take for you to be able to achieve this? [Deprivations, Sen ; Capabilities, Sen]

General/Open Questions for Community Partners/Stakeholders:

1. Please tell me a bit about this community and its history. [Social context, Robeyns]
2. What do you think are the aspirations of community members here? [Social context, Robeyns]
3. What is your personal philosophy? [Personal history and psychology, Robeyns]
4. How do you define 'success' ? Has your definition of success changed over time? If so, how? [Personal history and psychology, Robeyns] How do you think this community defines success? [Social context, Robeyns]
5. Why did you choose to work with the community? [Personal history and psychology, Robeyns]
6. Could you tell me a bit about the values of this community, as you perceive them? Do you have any stories that illustrate those values? What are the challenges faced by the community, in your mind? Have these challenges changed over time? [Social context, Robeyns]
7. What is the business environment like here? Do you feel like the local government and community groups like the one you work for have been effective partners to small businesses? Do you feel like businesses in this community are over-regulated, under-regulated, or regulated just enough? [Social context, Robeyns]

8. Do you think it is easier for a small business or a larger business in this community to operate within the law? Why or why not? [Means to achieve, social context, Robeyns]
9. Could you tell me about your process for making decisions about how to allocate resources to this community? Do you make decisions by yourself or are you influenced by other people? Has your decision making process changed over time? [Choice, preference formation, Robeyns]
10. How is your organization funded? What goods and services do you provide? [Goods and Services, Robeyns]
11. What kinds of resources do you need to provide these goods and services? [Capability inputs, Robeyns]
12. What kind of labor is required for you to provide these goods and services? [Capability inputs]
13. How do businesses in your community fund their operations? Do they take out loans? Is it easy for small businesses here to work with the local banking and financial system, in your opinion? [Means to achieve, Robeyns]
14. What do you think are the greatest challenges for business owners here? Why? Have these challenges changed over time? [Deprivations, Sen]
15. What achievements are you most proud of, with respect to helping this community? [Social context, Robeyns]
16. What do you wish you had achieved for this community, but have not? What do you think it would take for you to be able to achieve this? [Deprivations, Sen ; Capabilities, Sen]

General Technology Questions for Small Businesses (All Categories : N.B. - even 'Existence' MEs may have used tech in the past):

1. What [IT artifacts] software/hardware/Internet services/other technologies do you/have you used? <Means to achieve, Robeyns>
2. [For each artifact] Why did you choose this artifact? What was your business goal in choosing this artifact? <Choice, Robeyns>
3. How have your customers reacted to your use of [IT Artifact]? How have your competitors reacted? How have your employees reacted?

Means/Ends of Development Interview Topic Area	
Questions in this area will trace how enabled individual freedoms may or may not have served as a means to ME development. In this context, this reflects the ability of the individual to harness IT in service of net income growth/hiring (Sen, 1999; Zheng, 2009). <u>All</u> study groups will be questioned about the beneficial/detrimental characteristics of the IT artifacts they used, as well as about the direct effects identified in Qureshi (Qureshi, 2005). Open ended questioning will be used as well, in an attempt to uncover any additional capability improvement related effects that may have resulted in net income gains for the ME.	
Study Group	Outcome Assessment Technique
'Success' Stage MEs	Interview questions regarding the role ME technology patterns played in building growth-related capabilities. Focus on tracing 'before' technology situation through 'after' technology situation.
'Survival/Existence' MEs	Interview questions regarding reasons for non-adoption of

	technology and general lack of success. If technology adoption attempt failed, or offered no benefit, exploration of perceived reasons for this.
All Intervention MEs	Comparison of 'before' technology situation to 'after' technology situation in net income/employee terms, with consideration given to future prospects and ME opinions.
Community Partners/Stakeholders	Questions about technology usage in ME's community. Questions related to perceptions of resulting success/failure, primary obstacles to success.

MEANS / ENDS BRANCH

Means A. [For each artifact] Please describe your history using [artifact]. How did you come to have access to this artifact? How often did/have/do you use it? How often did others use it? What did others (employees, social contacts) think of the artifact? <Embedded System View, Orlikowski>

For Existence/Survival MEs: Are there technologies you would like to have accessed but could not? Why couldn't you access these technologies? <Deprivations, Sen>

For Success MEs: Can you trace through the history of your business, how your business was before you began using the artifact, versus after using the artifact? If there was a change, did the artifact cause the change? What role did it play? <Achieved Functionings, Robeyns>

For Existence/Survival MEs: If you believe that technology can be helpful for your business, why have you not adopted it? [If you did adopt IT Artifact] why do you think your adoption effort was not successful? Do you think the reasons for the lack of success were due to the technology itself, the people involved, your customers, the business environment, or your community?

What are the primary obstacles to your adopting technology? <Deprivations, Sen>

For All Intervention MEs: [For each artifact] Do you think that without the technology intervention you would have adopted [IT Artifact]? Has the [IT Artifact] been as valuable to you as you had hoped? <Capability Inputs, Robeyns>

For Community Partners/Stakeholders: How is technology perceived in your community? Is it considered critical to business success? Can you describe a business that you think has been particularly successful as a result of its use of technology? Can you describe a business that has experienced a significant technology failure in your community? What is your personal opinion about whether or not technology adoption will be a key driver in the growth of the local business community? <Environment, Robeyns>

Means B. [For each artifact adopted] What benefit did you derive from [artifact]? Specifically, because of your usage of the artifact, did you hire any more employees or increase your net profits? What specific business benefits can you describe that may have resulted from your use of [artifact]? Any business harms related to your use of [artifact]? Did you become more efficient or productive as a result of using the artifact? Did you learn anything? Were you able to access any new communities? Did using [artifact] make you feel like you were free to accomplish anything you were not able to accomplish previously? Did you save time? Any other impacts? If so, could you explain how you think it helped you? <Achieved Functionings, Deprivations, Sen, Robeyns>

Means C. Generally speaking, has technology played a critical role in the success of your business? If so, why? If not, why? <Capability inputs, Robeyns>

Means D. [For each artifact] Did you receive any help in setting up, learning, or using the artifact? If so, could you please describe what help you received? <Social Context, Robeyns>
 Was [IT Artifact] something you used regularly, occasionally, or only at specific times? Do you still use [IT Artifact]? Do you interact with [IT Artifact] yourself, or do you delegate that to your employees? Are your employees regular users of [IT Artifact]? Was it easy or difficult to get them to use [IT Artifact]? <Embedded Systems Perspective, Orlikowski>
Means E. What primary obstacles did/do you face in adopting/using technology?

Agency/Human Diversity Table Interview Topic Area (Robeyns, 2006) (Zheng, 2009)	
Questions in this area will attempt to elucidate the role of the ME's technology choices and skills in determining his/her business' financial situation.	
Study Group	Assessment Technique
'Success' Stage MEs	Interview questions related to technology skill development choices that led to successful and unsuccessful outcomes. Interview questions related to 'deliberateness' of technology strategy and technology usage patterns. Questions related to current awareness of beneficial technologies.
'Survival/Existence' MEs	Same as above, with addition of : Questions exploring reasons for non-adoption or failed adoption, to determine if these were primarily influenced by resources/environment or by individual choices. Questions about perceived potential to adopt in the future.
Intervention MEs	Same as 'success,' with addition of : Questions related to ability and willingness of ME to make independent technology decisions without assistance, in the future. Questions related to efficaciousness of assistance provided, reasons for. Researcher's triangulation of intervention journal with aforementioned.
Community Partners/Stakeholders	Questions related to perceived independence of MEs in community in making technology decisions and/or any locus of influence on such decisions.

AGENCY / HUMAN DIVERSITY BRANCH

Agency A. Do you feel like technology is a good investment, in general? What specific technologies are the best investment for a small business? What are the worst investment, in your opinion? If you could use one word to characterize your attitude toward technology, what would that word be? <Individual conversion factors, choice, Robeyns>

Agency B. Do you think that the technologies that you need for your business are affordable? <Inputs, Robeyns>

Agency C. Do you think that technology education is effective for yourself, for your employees? Do you think that it is easy to obtain? <Inputs, Robeyns>

Agency D. Do you have a technology strategy, a way of thinking about technology decisions? If so, what is that? <Choice, Robeyns>

Agency D. Do you consider yourself a 'technology person?' (Someone who is naturally skilled with technology?) If so, is that due to formal training, or just things you have picked up on the job, etc.? <Individual Conversion Factors, Robeyns> How much time, historically, have you spent learning new technologies? How much time do you spend now? What resources do you draw on to learn new technologies? <Choice, Robeyns> Could you tell me a story about a technology you learned, and how you went about learning it? Do you encourage your employees to research new technologies?

For 'Survival/Existence' MEs: You mentioned that you have not used a lot of technology in your business. On balance, do you think that this was because you did not have the resources to adopt these technologies, or for some other reason? Do you have a story about rejecting the use of technology that you think might be useful to bring into this discussion? <Deprivations, Sen>

For Intervention MEs: After the intervention, do you now feel you have the tools and knowledge to make technology adoption decisions without outside help? What interventions, in particular, have given you more independence? In general, do you feel the interventions you experienced were effective? What could make interventions like this more effective in the future? <Capability Inputs, Robeyns; Achieved Functionings, Sen>

For Community Partners/Stakeholders: Is there a business or person in this community who strongly influences others with respect to technology decisions? What has this person's role been? How about groups? Do you see a pattern of influence related to technology in this community?

Evaluative Spaces / Commodities Interview Topic Area (Zheng, 2009) (I. Robeyns, 2006)	
Questions in this area will attempt to clarify the financial context of the ME, and available resource inputs for ongoing operations.	
Study Group	Assessment Technique
'Success' Stage MEs	Interview questions regarding access to funding for ME, initially, and later. Questions regarding degree of financial success, ME's opinion of business climate in ME's field/area. Questions regarding ME's access to technology and technical support services over time.
'Survival/Existence' MEs	Similar to above, with sensitivity to income-related questions, and a focus on whether commodities deprivations are connected to technology decisions.
All Intervention MEs	Comparison of sourcing 'before' technology intervention and 'after' technology intervention. If no tangible resource allocations are discernable, interview questions will focus on ME's awareness of technology commodities and services before and after intervention.
Community Partners/Stakeholders	Discussion of technology usage in micro-entrepreneurial community. Perceptions of resulting success/failure, primary obstacles to success from a resource standpoint.

EVALUATIVE SPACES BRANCH (Mostly covered via General Questions section)

For 'Success' Stage MEs: If you don't mind answering, what percentage of your business' net income do you spend on technology, each year? Has this changed over time? If so, how? Do you plan on changing your spend in the future? Do you pay for technical support? Have you had a good experience with technical support? Has it been easy to get technical support for the software and hardware you own? How would you say your business compares, from a technology standpoint, to other businesses in your industry? <Environment, Robeyns>

For 'Survival/Existence' MEs: [Same as Successful, with addition of the following] Do you think that if you had more money or time, your approach to technology would be different from what it is?

For All Intervention MEs: [Similar to 'Success,' but wording changed to reflect before and after] If you don't mind answering, what percentage of your business' net income did you spend on technology, before the intervention? Has this, or will this, change post-intervention? Have you paid for technical support in the past (prior to the intervention)? Have you had a good experience with technical support? Has it been easy to get technical support for the software and hardware you own? Would you be willing to pay for technical support now? [Post-intervention] How would you say your business compared, from a technology standpoint, to other businesses in your industry, pre-intervention? How, post-intervention? <Environment, Robeyns>

Social Context Topic Area (Robeyns, 2006)	
Questions in this area will attempt to identify and define the ME's affiliations and potential affiliations, as well as any existing community-level environmental challenges (lack of protective security, for instance). All MEs will be asked to describe their support networks of friends, relatives, and social services (currently and previously). For each identified network, questions will attempt to pinpoint the role, if any, said networks played in the business' development. Questions will be posed related to any technology support MEs received from affiliates. Additionally, MEs will be asked about the role, if any, social norms played in their technology decisions.	
Study Group	Assessment Technique
'Success' Stage MEs	Additional questions may touch on how the successful ME thinks survival/existence MEs might be helped.
'Survival/Existence' MEs	Additional questions may touch on the kind of help survival/existence MEs most desire.
All Intervention MEs	Questions will touch on whether the ME feels his/her network has been broadened as a result of the intervention.
Community Partners/Stakeholders	Questions will focus on the perceived strength of social and community services, as well as the appropriate role for such services.

EVALUATIVE SPACES BRANCH (Mostly covered via General Questions section)

Evaluative A. How would you characterize the technology skill level of your friends/family/community? <Social Context, Robeyns>

Evaluative B. [If friends/family/community high skill] Can you draw on these people to help you make technology decisions and learn to use technology? Have you ever tried to do so? If so, what was the result? <Social Context, Robeyns> Whom do you go to most often for technology assistance? Are there any for-profit companies that offers these services that have a good reputation in the community?

Evaluative C. Is there a group you could join that you think could be a technology resource for you? Are you aware of any classes that you think could be particularly helpful to you? What might those be, and who conducts them?

Evaluative D. Is there a particular issue in your community that you think is going to slow, or has already slowed, technology adoption by small businesses?

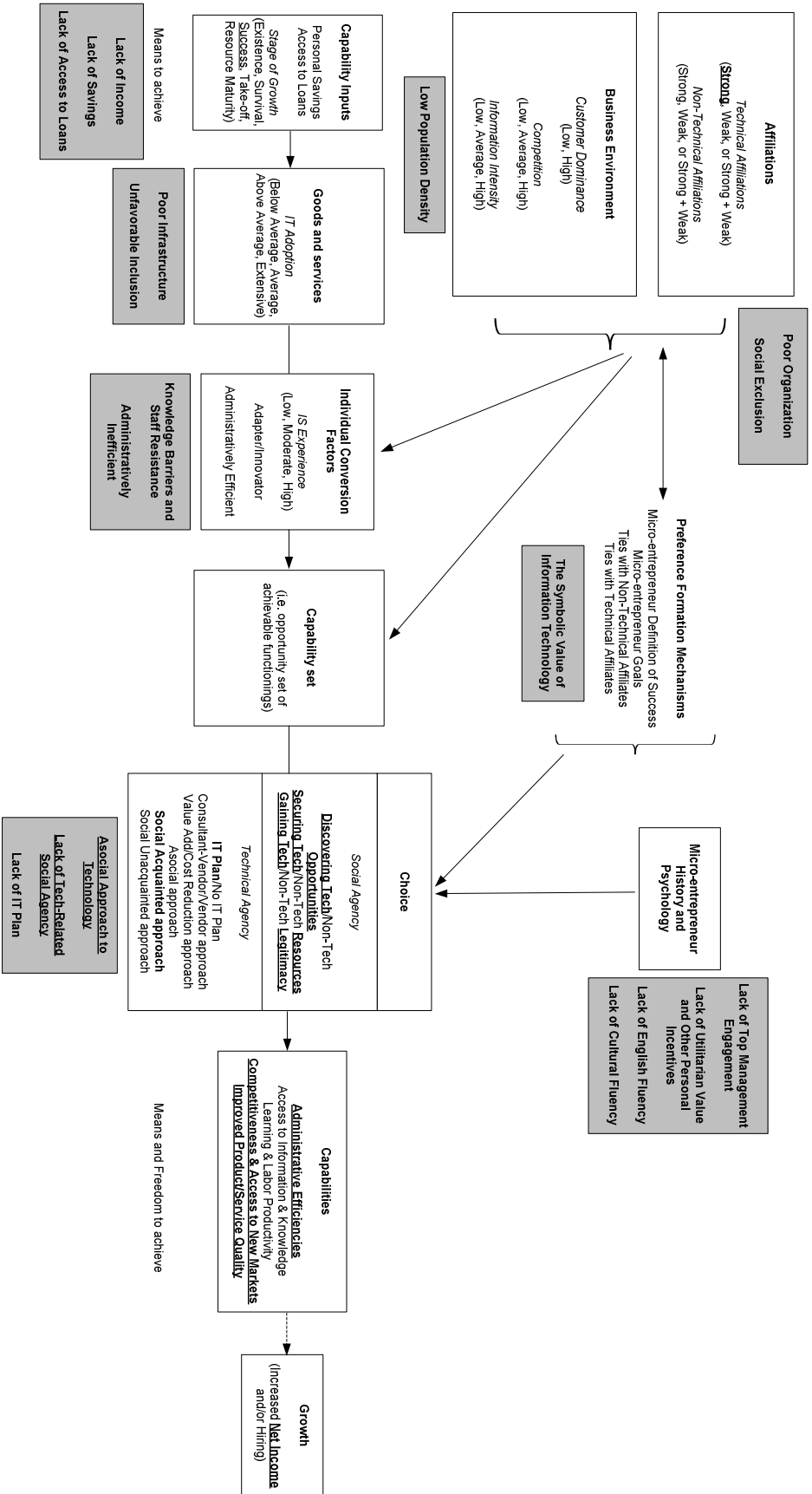
For 'Success' Stage MEs: Should MEs be offered technology assistance? If so, how should they be assisted, and what kind of assistance would be most beneficial? What kind of assistance would have benefited you the most, or did benefit you?

For Survival/Existence MEs: If you were provided with technology assistance, would that make you more willing to adopt technology? If so, why? What would be the most beneficial form of technology assistance for your business? For your employees? Has anyone tried to help you in the past? If so, how would you characterize their efforts? <Choice, Robeyns>

All Intervention MEs: Has your social network changed as a result of the intervention? Do you think you can access technology learning and support resources more easily now?

Community Partners/Stakeholders: What technology training and support resources exist within this community? Are they widely used? Could you describe the history of these services a bit?

**APPENDIX D: Updated Analytical
Framework Applied to an
Investigation of IT Access and Use in
Micro-enterprises (Figure 20, w/
Deprivations and Growth-related
Concepts Underlined)**



APPENDIX E: Community Partner Interview Themes

Community Partner Interview 1: PW, of OSBN

Approach to assisting: Training

The main goal; and I think we mentioned this earlier, is to change the mindset of entrepreneurs here so that they think strategically. And I don't mean to use that word loosely, but they think about where they want to see their businesses, because as common sense as that may sound, they don't actually do that. They don't actually say, where do I see my business in a year, where do I see it in five years? And part of that involves incorporating technology into their operations. As I mentioned earlier they just fly by the seat of their pants, and when you do that, the goals aren't set. So in our meetings, part of the strategic, the change of the mind set is to have meetings that say "what are your financial goals?" "What are your... you know... those kinds of goals..." because it doesn't happen. So, in a nutshell, that's what my goal is, that when each business comes in here, every business that's part of the program can say at the end of the year, "this is what I accomplished because at the beginning of the year I set these goals, I saw myself a year down the road and I'm able to say now, whether I did or did not accomplish this." If you were to ask anybody prior to this year, nobody could say that, what they've done or whether they've done anything at all.

(Detail approach to assisting):

[Okay. When you're evaluating whether or not you're going to help a particular person who wants to start a small business, what plays into your decision making?]

This is a real interesting question because when I started this position a couple years, three years ago, we were allowing individuals to come into the facility who basically had first months rent and a deposit. And upon entering and going into the CPM program at UNO, one of my projects for that was to streamline that process and to be more... to scrutinize more that because we were finding that we were losing... a lot of the businesses were failing that first year. So, in the interview process, which there is now, initially there was not, so in the interview process we look for things like passion and even if a person does not have a business plan, do they understand the concept of a business plan? What monies have they put aside, if any, for the start of their business? Have they thought about where ultimately they want to see their business? What does it look like in a year, five years? And so when we engage people in those kinds of questions we get a real clear vision, real soon, whether this person has put thought, time and effort into the business. If those things do not exist, we know right away that they're not ready to be a tenant. So what we do though is not discourage them, but say "we really want

you to be a part of our network... we have networking sessions, workshops, seminars available to you so that you begin to get a better understanding of the next direction or the next step you need take.”

I can only speak for the businesses that we work with of course. And I would say the majority of the people that actually in the program... the loan program there are about thirty-five businesses, and many of them got started without it. We’ve got what most of them do now who are wanting to start a business have a loan. Now there are about thirty-two businesses who are actually graduates of our program and less than half of those actually have a loan with us. Many of them, because of what we allow them to have or not have when they come in here, they can start with a minimal amount. For instance, when they come into our program a one room space for them would be two hundred and twelve dollars a month. I mean, with that they have access to a computer, to training methods, so it’s much easier for a business to get started that way than to think about larger businesses who need to pay a staff or a person or buy equipment, those kinds of things they don’t need when they’re first entering the program.

Perception of Tech in Small Business Community:

I don’t think they understand the magnitude of it. Last year we had a workshop on social networking and we probably had eleven businesses represented and only one business had used Facebook technology from that workshop and that person said they got so much business they had to turn it away. She said it was unbelievable how much business... she said that it’s huge and this person only uses QuickBooks, nothing else. So, even their weekly exposure to it is limited, there wasn’t a lot of time spent on responding to people or putting things out there, just the fact that they went on there somebody saw the business and it opened up a lot of doors for them. So, I don’t think they understand the magnitude of how successful they could be or how they could grow with that information out there and even if it’s out there they don’t really know how to use it. How it can benefit... in that workshop there were questions, a lot of skepticism and a lot of naysayers and you know “well why I want that?” We’ve got several businesses that just want to stay in the eighteenth century, they don’t want to change, let’s just do it the old way. So, they don’t really understand what a great tool it is, and also, how sometimes inexpensive it can be.

Exactly. I have an interesting quick story. There was a gentleman that, they have a store... food... grocery store and they bought some new computers to do their cash registering, that kind of thing and so they spent a lot of money on a radio ad, got a lot of people that day and didn’t see them again. So, we’re trying to figure out what happened, so the guy told us, well, I don’t really know how to use the computer well, so it took me a lot of time to get people in and out of the store. So, he had the technology but didn’t know how to use it! They got all these people in, but couldn’t get them out quick enough. Technology defeated them in that instance.

[tech as driver to growth?]

Oh... Yes! Tremendously. I believe that the story I just told you about the girl using, the woman rather, using that for her business and how it opened up doors, not only for the business itself, but for the person personally. We live in the twenty-first century and that's what people do. We use technology. When you finally have a door open to you where you can access it and begin to use it and see how the results are, then that, of course, is a springboard for you to do other things, to try more and that you feel good about the business and growing. A lot of people are afraid of growth. But, yeah, I think it's a huge factor in growing the business as well as the individual.

One of the things is the age factor. You have a lot of businesses here who are in that above forty age range and they're not as open to technology as the thirty-something and below are.

Influence of Tech Exemplars for Small Business:

I don't know because you don't see a lot of [ES type micro-entrepreneurs]. You know what I'm saying? [ES] is kind of unique among our business owners in that he really does use technology and what happens though, when you have an [ES] in a group of people who are not technically savvy is that he almost sticks out like a sore thumb and that's the way he's treated. But I think when you have more of those individuals, like when we had the workshop, we had the one person who was the teacher and the other people who didn't really know it as well, but they were still interested in learning from this individual. But if you... when it's the other way around that person is in a group learning with everybody else, it's like "he don't know anything!" Unfortunately, we don't even have a lot of those for me to answer that.

Definition of Successful Small Business:

Yeah, you know the word success is hard to define and I don't know that we've done it in our organization, but what we have found is that in trying to jump start businesses, that they may lose ground because jump start means to "let's get going;" "Let's move quickly;" "Let's hit the ground running." And so when you do that, one of the things that happens later is that you don't learn the importance of things you need to learn along the way. For instance, many people get started in business thinking they'll get to do their niche and they sit. They don't think about, "I have to be a book keeper;" "I have to be a janitor;" "I have to wear many hats;" and they get in that pool and they start to feel like they're drowning; and because they jump in the deep end, versus the beginner's pool. So when we say success, what we want to make sure is that individuals who enter under a program here is that they understand all that's involved in being an entrepreneur and that they take baby steps; that they learn the business in totality; and that they learn how to manage the business from day- to- day before they even think about growth and "how do I manage from one day to the next." And then we look at the growth aspects for that and sometimes that goal will be beyond the five years that experts have said, you know it's when a business should probably start to see a profit, if not less than that. And so, I don't know if I'm answering your question, but I am saying that success is difficult to determine, but we can say that when a business has made some money it needs to pay for its expenses and makes a

profit as well as manages day- to- day and plan for... you know, it sounds like a lot that I'm saying... it's true, you know success is determined by an individual business, its definition itself; basically to run a business and not... to run the business having time to work on the business and not in it, and not feeling like there is a cloud of mental fuzz over their heads every day, because you can be identified as successful in the business world, but just be absolutely bonkers. You know, you look at the individual and do you call that success? I don't know that you do.

Deprivations of Small Businesses:

It goes back to that way of thinking because they have not been exposed to a way of thinking for starting a new business. So the challenge then becomes to give them that information repetitively over and over again. Really, this shouldn't... I'm always a little embarrassed to say this but we should have known this all already that technology is not as easily accessible to individuals as it could be. A lot of that is maybe because they don't know. They want to learn it and maybe they don't have the funding, the resources financially to purchase what they need. We do see a lot of people that don't have the software for bookkeeping kinds of things or don't even want it because they don't want to have to learn that kind of thing, so the mindset and the technology are two big challenges. Funding, of course, money...

Business Processes in Small Businesses:

Yeah. The word you used, strategic, is huge with us. It is just absolutely, I can't... it's a word that we cannot underestimate in this area is that so many of our businesses...and this is another way we help them be successful in their way of thinking. A lot of our businesses believe that they can get started and they can just run it by day-to-day, it's always reactive, not proactive. Even those that have a business plan; even those that we sit down with and say "this is a guide, these are the things that need to be," and even though they have those, they put them aside to dust collect, and then they become very reactive in the way they do business from day-to-day. And to me, being a strategic thinker meaning that you move forward with a plan and even when you get distracted and diverted from that plan, you know that you need to go back to that plan. That, to me, is part of the success of a business as well.

[No, no, it's been very helpful. Now, what you're saying about the repeatable processes, so these businesses are doing things on the fly and they're not... what you're saying is the way to improve the results for them is to make them more consistent.]

Mmm hmm. For instance, we had an individual who began having problems with paying their rent. So, in my one-to-one of what's going on and he said he won't pay me; and I said "Why have you invoiced them?" and what I found out in this question and answer period was that the invoicing happened sometimes weeks after the actual service had been rendered and then there was no follow through, there was just kind of a waiting for them to pay me kind of thing. And something that's kind of very basic and simple like that for me, for an entrepreneur is a hassle. So, what we decided... what we came up with was, "Why don't you do invoicing once a week on

the same day at the same time and then each week there's a follow up, even if you don't have to do invoices, then you follow up on that." It was very simple and I said document the process so that as you begin to grow and hire somebody, then this person can come in and do that. This is documented, they know what to do and it makes life a little bit easier for you. And when people stick to those, to that concept and do it consistently, it takes away the clutter in their minds, their offices and it's just getting them to do it.

The other part of that, and we talked about this throughout the interview is that individuals who understand technology and know about its importance, is going to make the investment. The mindset, if you don't understand how the magnitude of the technology and how it can save you time or money or whatever it can do for you, then you're less likely to invest or want to invest. It's kind of like this is the way I feel when I'm building a relationship with a vendor is that if you're as good as you say you are, I don't mind saying where do I come in with the money to pay you for this. But if there's no reference, you know, it's like... so the cost is only a problem if they don't see the benefit.

Business/Regulatory/Economic/Financial Environment:

I think we've been very fragmented and isolated and alienated from each other and the organization, this organization itself has kind of mimicked that environment. But what they've started to see is the wheels of progress starting to move forward. And it makes me wonder why that is. I think part of that has to do with leadership. Part of it has to do with people in place who are concerned about the environment and what they do or don't do to make that wheel move forward. Now, prior to the current leadership, there were some great changes, but there weren't necessary changes in behavior or in thinking of the individuals. But there were a lot of great cosmetic changes, that kind of thing, although, as you can see that's important because people want to be proud of the environment that they're in as well as inside of the organization as well as in our community. Maybe the environment is sick, how people feel about their own business and what they do. For instance, across the street where we have four buildings when we had two move in which started to fix up, there was somebody next door whose building didn't look as great, who said, I want to find the money to get my area fixed up. So part of that is being about the way it looks, it motivates or takes away the spirit of business and I want get back to that leadership piece when the team that exist now began to get some things done and really went past just the status quo, past just the loan program. The loan program is there just to assist people to grow their businesses and when the director of the person over that loan program began to exceed, or go beyond just what the goals of that program were, we began to see people be excited and give back and be okayed because one of the things that happened in this community is that, though it's not unlike any other community in that people have problems, people have issues, but sometimes the resources and access to the resources make it difficult for them to believe they can get out of those circumstances and they may run and hide, or they may just go a different route, a non-traditional route of getting what they need to get ahead. So, in my own role as program manager, and when I began to talk to individuals and they would tell me things like "I can't pay the rent," or "I can pay half," and I would say things like

“Your rent, your business is your priority. You told me that you were excited about this and so you have to find another way. If your business isn’t pulling in the money, you’re going to have to do something different. Maybe you’ll have to get a part-time job, maybe you have to do something else to support your business, and the concept... this is huge, it sounds simple, but this is huge... when person is having a problem, a business is having a problem, individuals who are in place to help those people, do not have to become their enemies because they’re having problems. For instance, if you owe me money and it’s irritating the heck out of me that you owe me money, I don’t have to come at you and say “Hey, if you don’t give me your money that’s it, it’s over!” What’s happened to us is that we’ve built a relationship and a rapport with people, but still tell them, you owe us that and we can only go this far with you, but I still have a friendship with you, but I’m going to tell you, so that it helps you keep your dignity, helps you feel okay when you walk away from that, and even though it makes you say “you know what; I’m really going to work to do this now;” rather than running and hiding.

[regulatory]

Yeah, it doesn’t seem like there are any initial real problems other than with understanding what’s required of me, who to go to... for that kind of thing we have a resource sheet that we provide them, but there’s not... the steps are not always one, two, three, four... it may be go down here and ten and bring it up here to step two and sometimes the questions are easier answered in a workshop or you know, I’m not sure where that information exists in one place like that. I just think it’s having the knowledge.

Level of Service Provider Integration:

Though we’re independent in the sense that we don’t get funding... well... let me We’re independent because we are privately owned and we don’t have to answer to like the city or that kind of... but we... I... there are two parts of our program. There’s a loan program that I am not part of and don’t have those... uh... can’t answer to that. But the program side of it is that my relationship with other organizations is]. Because of my background, I don’t necessarily have to reach out to anybody outside, and so what’s happening now is that I have started to do that... doing a little bit more networking, and finding some resources that can assist us with this program; one of those being the Small Business Association of the Midlands. They have agreed to do quarterly workshops with us. We get so many... initially our program was just about helping those individuals who were in our facility who had borrowed loans. But we got so many questions from walk-ins about how do I start a business, what do I need to do and we were sending them to other places. And so, we’re now in a relationship with ----- at Small Business Association of the Midlands, we are now sitting on quarterly workshops where those individuals can come and learn about business basics. The other relationship that we’ve developed is with Nebraska Business Development Center. They are doing monthly workshops to show our residents about how to win government contracts. There’s one... I can’t... we have, right now, probably about three or four that we work with in the community, so I’m really excited about

those relationships because they help better define services and really, our level of commitment and to the people in our community.

Community Partner Interview 2: RC, of HCC and SOBA

Approach to assisting: Networking/Training/Lobbying

Perception of Tech in Small Business Community:

[That must be exciting. In terms of technology, I did notice the Computer Training Center, but is it your impression that small businesses around here are very aware of technology and use it a lot?]

No, it's actually the opposite. But it is still like I was saying, it's increasing and is different than it was two years ago. But we're coming from zero. Many of the businesses don't even have a computer in their business. For them, they do business the old way. There is a cash register, and there's an exchange of money for goods.

[Do you think it is generational or cultural]

I think it is mainly cultural. You have to keep in mind specifically, the Latino community overall is huge and we have different customs and uses. But most of the Latinos that immigrate to Omaha are from rural areas. It would be pretty difficult to find a Latino from Mexico in the city for example. Or Guadalajara. It is almost impossible. I do know some people. But because there are so few, I remember them, although they are not my friends. So keep in mind that rural areas in our Country means poverty. Working in that culture means that you are poor.

I can tell you that people are paying more attention now than two years ago. It has improved. I see more computers now in their businesses. But still, that is a part of our weakness as a small business owner, not being in touch with technology, or not using technology.

And also keep in mind that time goes by and we are getting old. The kids will be taking over the business.

At a certain point, there are still many people who in order just to access something; they need translation from their kids. But those kids are now finishing high school, and in some cases they are going to stay with the family business. Some people now are realizing that they have to sit down and finally learn to use a computer. They have to do it, "I have to keep an eye on my stuff. I need to work with an Accountant or Quick Books." But once again, the community in diapers. It's going to take some years, but I think we're getting there.

Deprivations of Small Businesses:

[Latino community: reason for organizing Hispanic Chamber of Commerce]

Being researched was that we needed some leadership, and join forces in order to access the different benefits and tools that individually we could not access.

That doesn't mean .. of course, because there was another Education Organization for businesses in the area. But it only covered the geographical area of the business corridor.

And also the meetings were only in English. Many of our small business owners did not speak English.

We needed to get immersed in the overall community, and language was one of the barriers.

A lot of different ones. We first were not having access to training and educational tools, because not many people knew those years about the Latino business factor.

And secondly financing. Most of our small business owners financed themselves. And in order to open and run a business they needed money. Also, some of these factors are linked together, because we didn't even know how to apply for financing. When we needed it, we realized that we were missing some requirements, just because of lack of knowledge on how to apply and what needed to be of credit for businesses. For example, we didn't know that at the time there are some not only traditional financial institutions lending money, but also a number of not-for-profit organizations lending money to small businesses. That was extremely new for the Latino mind, because back home only the Credit Unions are the ones to loan money.

Thirdly, leadership. There are some laws or ordinances [that are problematic]. In the overall Nebraska legislature are also local in dollars coming in from some other areas. But affecting small business owners, including zoning law, which could affect small business owners too in different ways.

[education]

It's almost surprising if you find out someone has .. business in Latin America at all. These people, they came from working in those kinds of industries. Just to give you an example, many of them did not even finish elementary school.

I know many successful people who did not finish elementary school. I lived in Miami before, and I saw different behaviors ..The rest of my family lives in California in the Bay Area, and the Latino there was different. They're different people. Most of the people here are hard-working people, but without an education. One thing I learned, I don't know if I sat down with you or the other guy.

[repair culture]

We fix every appliance, every device, and we have forever. It's a part of the culture maybe in the house where I was born and raised.

When I left Peru ten years ago, there was radio/stereo that she got as a gift when she got married in 1965. It was a big, wooden device. She didn't use it much, because we had gotten a newer stereo maybe ten years before. But she kept it there, because sometimes she wanted to listen to her LP's. And it still looks good and it still works great. I'm sure if that broke, she was going to send it somewhere to fix it. It's the same thing with the TV, microwave, and with blenders. I remember being sent somewhere to take a blender to be fixed. We did it with everything. Maybe that's the same thing with the computer?

[conservatism]

When I was a child, there wasn't a clue in my mind or in the family's mind that we were going to move out of the neighborhood.

Business Processes in Small Businesses:

[Uh-huh. Okay. So in terms of the decision making that goes on. It sounds like people don't really have a strategy for a technology yet by and large?]

Yeah, I'm sure.. it's running by instinct. You use it because you need it.

We are teaching that success isn't always hard work. People are starting to understand now that in order to open a business you need a business plan. That is a great achievement, because I am sure there are still some people who took their family savings, and opened a business because they thought they could do well. But there wasn't a plan unfortunately. But that part has been improving tremendously.

But one of the biggest weaknesses is that the technology part is not included yet in that plan.

So they are two steps ahead, but they still need one more to make it more solid.

You have to understand it step-by-step. We are going to get to that point, and we are getting to that point. Companies that I see using the technology is when there is one of their kids either working part-time or they take them to the business after school hours. It was not planned, but somehow it is working, or is starting to work. Another obstacle is everybody like me who gets behind. For example, technology flies so fast. Too fast for me.

Business/Regulatory/Economic/Financial Environment:

We are a mix of Mom and Pop Latino businesses with bigger, nationwide corporations being members of the Hispanic Chamber now.

I witnessed a lot of changes of course in 2001.

What I had heard before of South Omaha is that by tradition it had always hosted immigrants. The way I understand it is because of the meat packing industry. There are a lot of Italian, Czech,

and Lithuanian people around different sectors or blocks. Right now in the neighborhood where you are now for example, this is a Polish neighborhood.

And there are still some older people speaking Polish. When you are in business you listen to different languages, which is not English.

I know that there were not many Latino people coming this way maybe eighty years ago.

Many Latino people from Mexico had to work in the beginning with the trains. I actually tried to know some of my clients, older people, getting close to ninety years old. They told me that they came when they were teenagers to work on the trains. Then I know some more Latinos primarily because of the meat packing plant. And lately, Latinos coming mainly from Mexico, although I could see more people coming from South America too than I saw ten years ago. But most of the Latino population comes to work in the meat packing plant.

For example, the newcomers go mostly to the Park Avenue area. And then as a second step after finding a job, they come to South 34th Street. I learned that through my business. I also learned that many of the Latino population from Mexico around the Leavenworth, Park Avenue area are coming from a specific State in Mexico. That surprised me. The people are from Guerrero. Which is a coastal State.

And then you have on the other hand a big increment of people from Columbia. Guatemala, which is Central America and Peruvian, I've seen actually growing a lot.

In the Peruvian case, many of us are coming from Miami as the first port of entry. I know that some Peruvians that came into New York are moving this way. I realize that many of the Columbians of Venezuela, they come first to study at UNO or at any college. And then they try to stay with a working visa. They of course build a life here.

----- , yes. So that is kind of the composition of the immigration side in this area. That's why I guess we see more signs in Spanish in the commercial areas more. And also there are many people working in construction or the landscaping sector. We have now at least bi-lingual publications, which are mainly centered in South Omaha and coming out to the rest of the State.

Because of that, we have more educational training or not-for-profit corporations based there, and are functioning on educating and training, not only the regular immigrant with language and computer skills, but also you see some organizations teaching small business owners how to run a business. Some of them are Latino organizations. Some of them are local organizations that are learning to pay attention to this. They are opening branches, with banks and other industries.

We still have weaknesses in the young community, but each of those factors surrounding them with new commerce, like I was saying before the train. That's going to help. And there are many other consequences, Commerce for example, they're in South Omaha on a project. It is just starting, and it's going to take about fifteen years. That includes housing, safety, security, roads,

commercial corridors, and industry. They are trying to attract industry to this area. I can tell you that after ten years of being here, we're still seeing just the beginning. I am so sure of that. Just by walking down to it is the total opposite of what I saw ten years ago.

Level of Service Provider Integration:

[Low but they provide unique services, overlap is ok]

The Juan Diego Center has been growing and growing every couple of years. I know last year they opened a new Computer Lab.

They've been taking more space in their facility. They had to grow, because they have more people attending their classes. They do micro business training. They do tax information. And that is only the business sector, because I know they help women, they help kids; and they have a pantry I think. And then you --- for example, which is a Latino born and created corporation created maybe five years ago. They do some training for small business owners. They are one of the sectors that are helping our Latinas with home daycare for example. Grameen America is an organization based in New York, and they have a branch in South Omaha. They provide loans to businesswomen.

I know the Omaha Small Business Network is providing loans lately to an increasing number of Latino businesses. First National Bank, which is in the private sector, they have locations up in _____, which is called the Latino Financial Education Center

The try to provide education to the Hispanic community

----- to come this side of town. -----, workshops. The Catholic Church has a lot now. The First National Bank at the Latino Financial Educational Center, they have a lot too. Latinos have their own -----. I forgot to mention that before. It's maybe the oldest Latino not-for-profit organization. They do classes teaching computers. MLTVC, they are doing that too. It could sound like many people are doing the same thing, but from my point of view, it is good for ---- of the evolvment of the community.

Some of them are offering the same thing or similar things, but I think it's needed at this point.

We need to approach people in different ways and give them options.

And according to what I hear from MLCDC is to. They have more woman in their computer classes. Again, the fact that Juan Diego Center in South Omaha, they opened a brand new lab. That means there's a market for that. If they invested that kind of money in a different structure, it's because they realized there is someone who is going to use that infrastructure.

Policy recommendations for fostering ME growth (Community provider standpoint):

I think there has to be two approaches. Once again, at the beginning stage, you are dealing with some people who don't want to be served. Why? Because they do not know what is out there.

It's not because they don't want it, they had no clue that it was necessary on the technology side. So I would say first, a not-for-profit organization like it has been doing now. Basically bombard them with education from different ways. And secondly, the other approach would be from colleges like the UNO going basically on a one-to-one relationship, doing it individually with them. It is also good that they see on the other hand we are not a not-for-profit organization. The greatest threat of that approach is it is not a business that is approaching you, and secondly, most of them, they have a bilingual, brown-skinned people to help them. There is a good link there.

But at the same time in the case of UNO or a college, that helps too, because they help again a not-for-profit, it's not a business. And secondly, it's totally the opposite which could work is not a Latino. So that might open doors. "Why does this person with white skin want to help me? We don't share much in common, and he wants to help me?" If I didn't pay attention to my Aunt or my son to learn computers much, this is a college. I should pay attention to that. So I would say that based on two approaches would be the best way

Community Partner Interview 3: LG, of GOCC

Approach to assisting: Connecting People, Training Events, Strategic Initiatives

(Detail approach to assisting):

My day could take me to sitting down with somebody who's thinking about starting a business—a daycare center, a small restaurant, whatever—to some of our members who I've known for 20 or 30 years who've grown their business. They're becoming successful and how they can utilize the chamber more. So it's a job to job—it's fun.

Well, what we'll do is we put on networking events where we, I don't want to say, force people but we'll have coffee in context, we'll have a business after hours, networking at noon where anywhere from 40 to 50 people up to two or three or four hundred people would be in a room with coffee and a roll—a late afternoon—with a beverage, hors d'oeuvres and their sole purpose is name tag. As a chamber staff person I'm trying to force people, if you will, to talk to each other. What do you do? Oh we do this kind of thing. We have this racket, and what happens is maybe that one-on-one contact isn't perfect but the next contact I say you ought to talk to Carl. I just talked to a guy who does that. All of a sudden—so there's a lot of networking. We do a lot of, what I call, management training where we're topics from sales and marketing, technology kinds of things, the latest in PR kinds of things. It'll either be the old traditional style or the new. So we do different training things, customer service 101, networking 101, and we'll do that once or twice a month on different topics, and then the big stuff, like the Big O show, which is seven thousand people in a big trade show where the godfather, if you will, of trade shows in Omaha. There's some training in that. So it's many and varied or the one-on-one call with Larry—who do you know that—because I've been around so long that I get a lot. A lot of our members are saying I don't know who to call but Gomez. Through the years I've been sort of the guy that's

been lucky enough to be with our members a lot in our award ceremonies or manager training things. So I've been sort of the face of the chamber, if you will, for—because they see me. A lot of staff people do great things on economic development but they're more inside. I've sort of been the outside guy

Yeah, it could be high touch or it could be high screen. High touch screen—how can I help you where I'm really looking at somebody face to face or high screen—maybe they need a referral from where I get them to our website to take a look at who the other members are that they could do business with.

[Now you mentioned these monthly get togethers involving different topics. How do you select the topics of interest?]

We have—a couple of times a year we ask our members what are—in two ways. We ask possible presenters what's hot in your list? If you're a presenter what's hot on your list of things to do in 2011 and 2012? What are some topics that draw? We have them submit like small RFPs. Then also we solicit some inputs from our small business members on if there was a topic that you'd like to see what would it be? So then we try to match it too and try to say, hey, it looks like we've got—and it's not an exact science. No matter how much—but it still comes down to the title of the topic. If it sounds good some would say you have to have financing in your business. Well, if you just put that title everybody we'll go but the one, two, three, the getting money for your business.

But still people want to talk to each other and trust each other. Then the other side of it I do once a month we call executive dialogue. Now those are specific groups that meet once a month. Tips groups are for sales folks or anybody that would want to exchange business owners; check signers—the top person in a small company. What's said in the room stays in the room. It's not a lead generation. Things happen because do business with each other but people bring up growth issues or whether you're thinking about changing my name, or been on the website, or how come your using this? It's really pretty cool because you have other people in the room—probably about 15 people we try to have a banker and accountant and attorney in each group for professional help. It's not as—there's some other private groups that want to be on some specific group—hundreds of dollars per quarter. Ours is part of the chamber membership. So it's a pretty good value. But we try not to go overboard with follow-up minutes. You don't want minutes of that stuff; at least in our case. Right, what's in the room stays in the room and, knock on wood, there hasn't been an issue with somebody talking about somebody's problems in a breakfast spot. So our services are many and varied in the small business area. So it could be for the two person place but it could be somebody that has like 300 employees and four sites in executive dialogue. It's all relevant. Why I joined the chamber 30 some years ago First Data Resources was barely in business. Now what? It's a huge chunk—and that's what we're all about to grow something, to grow nothing into something.

[Strategic initiatives]

Blue Cross Blue Shield and five years ago was looking to do something different other than put their new building up—and exorbitant buildings or Mutual of Omaha going, wow, should we do something or should we just be mutual. No, they put down midtown crossing. In the mid 90s you know really pushing the Omaha citizens that we got to do something to build a new arena. You know all this stuff doesn't just happen by people sitting on their thumbs. Now it took private sector involvement, big business persons with a lot of money and other people, civic minded people but we were behind it but we weren't on the front page going look at us, the Chamber of Commerce. There is a lot of our people, the staff, the big staff, the presidents, CEOs that were really pushing, hey, let's check—go and don't get upset. Every body's got egos and they get mad. It's that intangible stuff that sometimes we give the credit to the company that's expanding. They may have called us two years ago and said why should we stay here. We've got a great offer and we moved to St. Joe, Missouri. So we got—we're hopefully not scrambled but that's the other challenge. You don't want to take your present companies for granted because somebody's always trying to steal because we're trying to look at a lot of companies in other cities.

Perception of Tech in Small Business Community:

That's a little bit of a service thing with small businesses and whoever. Sometimes people get so connected [electronically] that they forgot to look at somebody. You know it seems to really translate to that guy or lady in business.

Definition of Successful Small Business:

Attention to detail, most on the customer service side. If you say you're going to do something at four o'clock its there at o'clock. I'll call you tomorrow morning before nine and you call them before nine. You know show up and follow-up. That to me is there's so much out there especially—and I'm just talking remodel, plumbing, landscaping, irrigation, service type of companies. What ticks people off the most is, well, I understand...

Deprivations of Small Businesses:

[they need to know more about legal issues]

Legal issues—and so sometimes I can help find free help in that area. Sometimes they don't bring up HR issues but they've got. Sometimes they just shove them to the side like it'll go away but some of those things that if they flash up they could be out of business in a day or two with the wrong kind of HR issues and depending on how big they get. They can get away with a lot of things. That sounds terrible but between one employee, let's say themselves, or two to 15, they don't get into some guidelines and government stuff and whatever. You get above a certain number, 15 or 20, then all of a sudden the wrong person files something it's uh oh. So a lot of times what I've seen through the years is sometimes the topics that you think are going to really draw, probably could draw, but a lot of our members—well, maybe I don't think I got a problem so I'm not going to go. Now, if it's a one-on-one thing or if they call and ask for ----- I've got a

little legal issue and then those are the can't courses chamber people with Sarah on the phone or in a room stays in a room. So then we have some groups like tips groups which are what I would call the old school business exchange networking groups where lead but they meet once a week. So it's pretty aggressive. Of course, the social media and all the technology kinds of things—it hasn't blown that up but it helps.

[time to network]

The ones that are involved really get involved and the ones that we can slow down, if you will, and get a good connection with it'll be an ah ha moment and they'll get it. Out of all of our members maybe a majority know what we do they sort of get what we do but they're just busy on their businesses. Maybe when they gold older—maybe in their 30s and 40s they're growing that business and they started it from nothing or maybe they took it over for dad and mom but maybe they'll get involved when they're a little older. I hear it sometimes when they're around 50 say, you know, I want to give back a little bit. Our business is running. I've got somebody running the business. Yeah, I got to keep my eye on it but I don't have to be there 25 hours a day, 20 hours a day or whatever. So I think as far as chamber what I see is its all—I don't want to say it's all or nothing but...

[motivation]

Yeah, you get—if they're just dabbling that's almost the worst because if they don't get a quick, ah, the chamber doesn't do anything, ah, nobody cares about it. I joined the chamber I thought I was going to get all kinds of business.

It doesn't work that way. So that's the biggest challenge is that middle group, the dabblers that just joined or have been members for awhile and somebody pricked them to say you got to be more involved. Then they go to one meeting and stand in the corner or it wasn't exactly perfect. Like one meeting--or for some reason they think that a lot of times this is internally. They think the Chamber of Commerce—they go, wow, that's big. Its 33 hundred members. Okay, we got 42 staff. We're a small business. I mean we're not huge. We got a nice building and all that and we're not Con Agra. What they thing when they joined the chamber is that we can spend a lot of money with them. They think that—I mean how many times can we clean the windows. We only have ten windows. We don't have that big of a light bill or whatever. So, well, gee you guys haven't spent any money with me—or a restaurant. Restaurants—that's a tough one for us. A lot of them join but we don't—we'll have meetings but most of the time it's a smaller thing we'll have it in our area. We can't spend a lot of money or we don't normally or maybe a caterer every so often. So what we're here to grow is the metro area besides offer services for our members and small business mainly.

[financial]

If the business goes bad it's an easy thing to say, well, I'm going to cut that bill out. It's not a must pay bill. It s a chamber member; it's not like I'm going to take you to court. It's not like

you're not paying your taxes. So we still want them involved but there's some that just say, no, they do great working and pay the bill. Now the most involved ones or whatever, those are the ones that come to events, they sort of help you sell memberships to other people just by osmosis. They're the ones that are most engaged. They ask us, hey, can you try this, have you thought about this to do and da, da, da. They're great! Sometimes they're a challenge because they're always thinking with you but that's fine. That's an engaged member. As I said the middle third are the ones that have been paying the bill for ten, 15 years, probably have come to something or they're just random members, have dabbled once or twice, and maybe they didn't think they got enough out of it so you just lose them for six or eight months. Then all of a sudden here comes the bill after the first of the year. Well, why should I rejoin we haven't done anything or they haven't done anything for me? Well, have you been to anything? Not really—it's like church. I don't want to bring it into it. If you don't go to church you don't get anything out of it. Its, yeah, yeah—so that's our biggest challenge with 33 hundred members.

Business Processes in Small Businesses:

You really got to just be focused. Small business people who I've seen that have been successful they're really laser focus, the good ones departmentalize is where they're at and they don't rattle off into ten different schemes. If you're a certified transmission you do transmission. You're not trying to make oil and you're not trying to do bolts.

I've seen some small business people who really have some struggles about having six or seven different profit centers. When things are rolling Peter's paying for Paul or Carl or Felix but when things start to go bad—and that's what happened with the economy three years ago. If you had a lot of different profit centers and three or four of those five started to go poop the other one couldn't hold the whole thing up so everything went. It wasn't anybody's fault but we had—I call it a tension business disorder. My little AB disorder. Yeah, you had a profit centers if possible but if you're good at making positive—if Lasolavilla Restaurant you're not going to be Pepper Jack. You are what you are. So you often wonder why Taco Bell is trying to do breakfast. Well, okay, there's a drive-thru and they can make some bucks but is that really their key point and do they—I heard a small business person say if you do something, if things are going right, fine, but if you're to a point and you put a number down on the negative side—and heaven forbid you get to the number—but don't chase a number below it to bring it back up. When you get to the number you either get out or you make significant changes, not to change it or basically he's saying don't run after that number. Like don't go back and try to bet arrows again. It was one of those interesting comments that you got to put a number down and put it down early. If I get to a hundred thousand in debt I'm not going to chase it anymore, cut my losses and get out. You can use that number but too many people keep chasing it and keep chasing it and all that kind of stuff but would say to me its focused on their business which they started with. Everybody—I sort of roll my eyes and I have to watch myself when a potential small business person will say I'm thinking about starting a business. Well, I'm a franchisee. Well, this makes this successful first before you worry about franchising.

So I think for some businesses it's expected that they're rocking and rolling. Its, okay, you hit this one you have to leave over here but in other businesses—again, its knowing your customer. If you're—and that person who's setting appointments or the plumbing and the heating and air. They can't just assume and abuse if they send an e-mail to Mr. and Mrs. Jones at 42nd and Miranda—because they're 70-years-old they may not see it. They send you that e-mail but maybe they don't look all the time. So, but maybe the owner knows different but the set-up, the appointment girl or guy is really technology wise. I'll just do it; I did it. it's done. Sometimes I think in technology they want to get it done so fast that—maybe its they're over—they think they're over burdened or whatever but it's done in three seconds. Whoop! There it went. Maybe that quick phone call and maybe it's a voice message but you do both. Again, knowing your customers so depending on the situation I think it can be a hindrance.

Aspirations of Small Businesses:

[Yes, and I think that's plain in which way you're talking about it which is growth can be facilitated by technology is there's that alignment between the customer base and the services that the business is providing. That makes a lot of sense.]

Level of Service Provider Integration:

We communicate a lot. In the Nebraska Business Development Center, SOBA a little bit—I mean we do. There's so much work out there. I mean some—there's some but then you need it. I mean they're stepping in the what have you but there's so many—every Tom, Dick, and Harry is putting together a five to seven networking event. Five dollars to the lymphoma covers your drink. It's a phony finance thing. It's like when we did two percent of what we're doing now back in 1976 but the expectation is usually the University of Omaha and Leadership Omaha and Young Professionals Council, all the different programs but yeah there's a scandalous core of retired executives part of the SBA. They'll sit down with 30 potential small business owners once a month over a two night period for 30 bucks and say so you want to start a business here. They'll have guests come in. great! Do that! Because I can refer them over to them, in some ways I don't have to worry about it. Could we be doing it? Yeah, but that's going to take somebody almost half, three quarter time to manage that, do it right, have speakers, organize, come on.

And like NBDC—they're more in the long term assessment. They're the business plan and the packaging and maybe putting together a financial—I'm more into where we can get some information with our research people if need be, maybe some guidance on getting them to the right source or giving them some advice. Some think that they can go to the SBA and get money. Well, no, you have to start with your local bank. Some folks, just be honest, maybe they're not bankable. So sometimes they have to be honest with them saying what I'm saying is you're going to have to come up with fairy god father's here because the times of 20 years ago or ten percent usually come. Well, you need to come up with ten thousand dollars if you needed a hundred. Those days are gone! You need 30 to 40 percent; something to—its way up there now.

It used to be three years ago 20 to 25 percent. So I don't think it's overburdened. I don't think it's over who's doing what or whatever. Part of my job is getting them to the right help. We work together on it. so, no, it would be some that may be think there's over lapping. I mean there is overlap but that's more work to do for everybody.

Community Partner Interview 4: TC, of GOCC

Data office collects:

Econometrics, and SBIR (Small business innovation research grant information)

Approach to assisting: Creating Networking Opportunities

(Detail approach to assisting):

What we try to do on the entrepreneurial side of small businesses is say boy you really have a technical expertise in this space. Have you ever thought about working with big companies and growing into solving that problem using that as a solution to all the base companies with that?

As an organization, we said there are people that do that and know the score. The individuals that work with this that we will know. As we see stuff that looks really great to send out to person A, we will send it to them.

What we say we do is connectivity. A company walks in the door and says we have a problem. Here is our problem. Almost always the problem is we need money. The reality is it is usually not the problem at all. We do not know what to do is the problem.

A lot of that social capital stuff is really on the ecosystem which is where there are gaps in most communities.

What I would tell you is that within that, part of the reason those gaps exist is there will be somebody there that there job is to connect them. Find a route between the two pockets of people.

When I started I did not really get how important it was that you need a voice. If you look at the Silicon Prairie newsletter, it has been highly impactful in the marketplace. Even entrepreneurs that have literally nothing to do with IT read it. It has a huge impact. What it really has an impact on is it puts a forum together. It puts an outlet together where people feel like their voices are heard and where there are models.

Primary area of innovation in Omaha:

“Payment Systems”

In general what we do well is build enterprise systems that involve some complexity that require you to understand an industry, manage some of the risks, and then turn it into a simpler and

more efficient product. Within that, the applications where you see entrepreneurial startups come from tend to be payment systems.

Business/Regulatory/Economic/Financial Environment:

There is venture capital in Omaha. In addition you would not want to have four hundred million venture capitals because you do not have the deal volume to support it right now.

Then you want to build it a little bit at a time. There are three funds right now that I would say are VC funds that will follow on funding.

We have zero VC in 2008. Last year we had somewhere in the twenties.

Deprivations of Small Businesses:

It is almost always people honestly. It is very rare that you come to somebody that comes in my door and says I do not have a technological solution to a problem.

We do a lot of those sorts of fill-in-the-gap type of meetings. That is really the connectivity part. The second thing that I think is really relevant there that is not a technical problem but it is a technical problem from a development of the company is teams are terrible. In general, failure is about the team. It is not about the technology. The teams are the problem almost exclusively. I do not have a guy who can sell. I do not have a guy who can scale. Do not have a guy that can take the program and turn it into a prototype. I do not have a manufacturing relationship. I do not have the key relationship to get the customer. Do you know what I mean? .. It is almost always that that team is not set up to grow.

Level of Service Provider Integration:

It is an interesting question... Three years ago we put together what we call the Round Table. There is a group called the Eastern Omaha Business Coalition. Do you know about these groups? I think within certain places they do a pretty good job of working together. Certain places they compete. Then certain groups do not have a very good reputation. The real issue is doing a better job I think of having outcomes that are meaningful and reported in a way that everybody knows what those outcomes are. To give you an example of somebody doing a really good job, there is a guy named ----- [PH] at SBA. He has done a great job of just saying this is the amount of SBA 7A loans. It was not that you could not get it. It was that you just did not even know to look for it.

We have done a good job of having a newsletter that says here is what is going on. This is what is happening. Here is what we are seeing. Build on visibility. Within that visibility, it means you now have a context to have a conversation. Within that conversation you can say to somebody, have you seen a lot of this? They can say no, we have not seen a lot of this. Where is it going? Oh it is going in a little bank. Why is it going to the little bank?

What I would say is most people have wanted to say let us institutionalize strategic information sharing. My take on it is the entities are just intended to do that. They are getting grants based on certain information. They do not necessarily care about competing on those grants, but they qualify uniquely a lot of times. It is that if you actually get to the bottom of the information, there is a company that gets reported four times by four different entities. If you strategically share and know that you cannot all disclose the same guy, suddenly our numbers go down. We do not look at it. I think one of the problems is for certain entities, NBDC as example reports SBIR knowledge as well. What I would say is those numbers get over-stated by those entities not out of misrepresentation but because of the overly. They will often say we worked with all of these companies that got us CIR dollars. That is not generally true. They may have called them, but they did not really work with them. We should all collect the exact same information and we should put it on a public database so we know who is good at it.

Policy recommendations for fostering ME growth (Community provider standpoint):

The second thing that I would probably do is I would probably focus a lot more money and attention on getting Iowa, Nebraska, Kansas, South Dakota, and Missouri -- that Kansas City part of Missouri, that corner -- to really collaborate better. In order to make that happen, I think things like having universities that work together. You get in state funding. Having some programs that are really geared towards finding matching grant dollars to run programs like the I6 or PFI programs for other NSF related programs. I think the competition does good things. Probably I would focus on regional collaboration particularly around academics, but I do not mean really academic. Then the third thing I would do is I would probably put a little bit more grant money targeted at commercialization from both the university as well as sort of large companies into spin-out fall companies.. The third thing is really figuring out ways to fund non-diluted money to companies early in the process.

Community Partner Interview 5: HC, of GB

(Detail approach to assisting):

So, actually, our program is community based program so if a woman is interested in our program she has to find another four women to form group. So group is our first organizational step. These five women should know each other, because they are part of an organization, understand? Grameen philosophy is that one woman, one power, five woman, five power, ten women, ten power. They can help each other, with the marketing, for their business, for any kind of information, experience, sharing everything, so that they can help each other for surviving. So this is the main philosophy, why to form group.

[So it is kind of like building social ties]

Absolutely, absolutely. So woman empowerment. So our next step is center, center is the second organizational structure. So what is the center? Five women form a group, who are living

near each other in the same community. More than one group for a center. Five groups form a center. Understand? Once a week, they meet together, in a convenient space maybe in their house, maybe in a school, maybe in a church, maybe in a business place that does not matter, they will decide which space is convenient for them. This space is center. So five women form a group, more than one group form a center. All the women meet together once a week, this is called a center meeting. So, at the same time they attend the meeting, our colleague attend the meeting. They attend there for some reasons: Number 1, to help people getting started, if anyone needs help getting started, Number 2, to propose the loan, if anyone needs a loan. Number 3: Sharing with each other. So this is called center and center committee.

[And how does the center interact with all of you?]

Ah yes, yes. Good idea. Ah, actually, to control the group, each group, there is a group chairman, a group leader, she is responsible for the conduct of her group, supervising her group. So in center, if for example is made up of three groups, there are three leaders. Three groups, three leaders. They will decide, who will be the leader of the center. So on behalf of the center, center leader will communicate with us. And our colleague, is the main media to communicate between bank and center members, through center manager, center chief. So if group require anything, they will propose to center chief. Center chief will propose to our colleague. Then our colleague will communicate with me. Our colleague is trained, so any difficulties, they can contact me, so that I can give the solution.

Perception of Tech in Small Business Community:

[Do people seem willing to explore using technology to grow their businesses?]

Yes some they are thinking about this

[Do they ask for loans to buy computers, for example?]

It is depending on the business. So for example there is a tax preparing business, and she is asking for money to buy a computer, things like this, for all IT products and programs.

Influence of Tech Exemplars for Small Business:

Our maximum [most profitable] members are doing business for cosmetics and for jewelry business. They order all their merchandise online. They are ordering by online. And shipping their merchandise to their shop, to their house

Definition of Successful Small Business:

Actually, according to Grameen, we use two formula. Number one, physically, we visit their business place twice or three times, a year, or within six months, and look at how much merchandise she has [the micro-entrepreneur]. And how much, for which, she already give orders [how many orders she has taken]. We try to see some papers. Another thing actually,

when for, for example, this member, name is Angelica. When first she joined, we take down her information, how many family members, how many family members involved with income, and um, about her assets. Every asset. So that we can see about the development of her business like this. And another thing, actually, we observe their face. If she is happy or not, it is a psychological thing nothing more. If she is happy with the program, she will respect me, she will respect Grameen, and be very interested in this program. And those who are not doing business, they will show their disinterest, they are not being so interested about this program. So Angelica, I will ask her how is her business going, and she says "Very good, very good" so I try to connect something actually, from the inside of her mind, actually, it is her actual voice or not [whether she is being truthful], actually, she needs this money, or not? She is using this money, or not? She hopeful for this money, or not? It is psychological thing.

Deprivations of Small Businesses:

[Low Population Density]

There is some challenging issue in Omaha, number one, actually, Omaha is a thin populated area. An isolated area. To find their friends, to form a group from the near places, it is a little bit difficult. So now we are considering ten blocks. You can consider your friends who are living within ten blocks. I have not seen conditions before like this, you know, because Bangladesh it is a very densely populated area, and we have two areas, one is rural area, and one is town area, but 90% of people live in actually, village, and they are very near to each other, so within [laughs] fifty meters you will get a hundred people. But here, very different.

Yes. It is taking time. And we have to be a little bit flexible. Because everyone who works here they buy a vehicle so they are all over, two miles, three miles, and not difficult for me to go two miles or three miles in two minutes or three minutes, understand? So [they spread out] like this. Another thing, is, Winter is a little bit difficult for us. Because our community, experiences its ups and downs, and when deep snow, deep winter, it is a little bit difficult for us, and difficult for our members. For the women, and also for their business, it is a little bit difficult

Business Processes in Small Businesses:

[So, you are saying that you see incremental progress]

Yes. I can give you another good example. We have a lot of members who are doing catering, but when, for example, they are doing business from their house, from door to door, by basket, eventually, they are wanting a loan to buy a van. A van. So they can supply the product by their van. And salon business, before they have only one chair, now they are renting two three chairs.

Business/Regulatory/Economic/Financial Environment:

Yes, Grameen, is not doing any marketing. We are concerned with creating networks. And we think that this is the main thing, our members and our colleagues are the main source for transferring information. And here is another thing I will show you, here are different

businesses, and they are all related in different ways, and exist within different centers. And our colleague, you know, he is visiting all the centers, and so he shares this information among the centers. You need cosmetics? Here is someone who can help you with cosmetics. And we have all the telephone numbers, that we can exchange between them. And also, we are giving loans to a woman, but she can share this loan with her husband and with her adult son also. They are sharing information too. So for example, the woman's husband is a car mechanic, and so she tells me: H---, if you need your car fixed, you can call him. And he tells someone else, if you need a loan, you can call H---. And having these meetings, the once a week, once a week is enough to exchange this kind of information.

Community Partner Interview 6: AA, of NBDC

Approach to assisting: Business Plan Training / Connecting Businesses w/ Gov Contracts

(Detail approach to assisting):

If the government--a town, city, county, state, or federal--already has a product, a goods, a service, that they provide themselves, it's called "acquisition", they acquisition [acquire] it within their own services. When they go outside the government, they call that "procurement"; they procure a table for an office, they procure fuel for their trucks, fill pot holes, they procure to come in and do electrical work in the building...that's called "procurement". The problem is they don't know, "Where are these businesses? Can we have someone between us--the government--and the vendors?" So they create "PTAC"? counselors, and we're kind of matchmakers, and we match the needs of goods and services for any government--federal, city, county, state, or town--to what businesses are out there. And our goal is to generate \$100 million a year in contract awards for our client; it's a free service; and if you divide an average job in the United States right now, so about \$50,000 into a \$100 million, that means we try and create or retain about 2,000 jobs in the state of Nebraska. And then around the country, every state has these same goals. They could be hiring in New York or lower down in Mississippi, and it's about population, and out of the 50 states, population-wise, we're about the 43rd largest state; ...a million-800 people.

There's five steps to it. If you were a small entrepreneur starting up a business, and you've been in business for several years, or you're a non-profit, your insurance...or you're a large corporation...any of those categories or types of businesses...or you're a woman-owned business, or you're a service-disabled veteran, or you're an African-American, or a minority, a Latino, Native American, Indian, whatever type or category...there are five steps.

Step One, is we educate you on the market. What within 50 miles of this building...there are 116 town governments that you could sell your goods and services to; that's a great market. There's also 16 county governments you could sell your goods and services to. There's two state governments within 50 miles, Iowa and Nebraska. And then there's two cities, two city governments--which is Lincoln and Omaha--and then there's the federal government, and the

federal government is representatives of the 400 federal agencies in federal buildings. So here in Omaha we have 3 federal buildings, and in Lincoln they have one. And as you get out in the state, there at Grand Island and North Platte.

So once you're educated on what your market is and who you want to target, [STEP TWO] then we help you to get registered with them, 'cause they gotta know who you are. And you've gotta show your credentials, such as, do you have a -----'s number..... do you have a tax I.D. with the IRS? Do you have a name registered with the Secretary of State of Nebraska to do this business? You know, your Once we help you register with the city of Omaha, Douglas county, the state of Nebraska, the federal government, whichever ones you pick...

Then we move on the third step, which is looking for bid opportunities. Show me the money! How do they advertise goods and services, matched to your goods and services? And we do it two ways: unsolicited and solicited. The government puts out solicitations by advertising on their websites, and you can approach them [unsolicited] and market yourself to them, to what's called "capability statements", and then you describe in a letter or a brochure, this is who I am and what I do, and I'd love to sell it to your government. And we help you find who to sell them to in this step.

The next step is, you find an opportunity you want to bid on. So you need help drafting out a timeline and an outline on a proposal. A proposal could be a credit card, that's less than \$5,000. It could be purchase order, if it's under \$10,000. And if it's Above \$10,000, then it's going to be a request for a quote, or a request for a proposal. And the acronyms for that are RQ and RP. And those take more time, but usually they're for programs that are a year long, or two years long, versus projects, like credit card transactions and purchase orders and So we help you navigate how to put your proposal together, your price, your technical approach, your cash performance, whatever they're asking for .. so we interpret it for you, help you do a timeline and outline...and then right before you submit, we'll review it as though we're the contracting officer or we're the government, and then we'll give you our honest feedback, and then you send that in, and if you win it, we move on to the last and most important step.

Now uou've won a contract. How do I get paid, and how do I implement my project now? And we can come in and serve as your project manager, and help your project team do everything you said you were going to do in that proposal, that matched everything..

So those are the five steps of what we do.

Definition of Successful Small Business:

Normally, it's—we measure it every day down to 15 minutes per consultation. We have 15 goals that we measure all clients with, from our outreach programs to our initial counseling, to our follow up counseling, and then we track the number of proposals they put in and the number that they win. And then we measure our own success, and we call them “Key Performance

Indicators". And then we report those right up the university chain of command, so it rolls up to the governor's office so he—we're really economic about all this, we're...

Aspirations of Small Businesses:

Well, all of them basically start out with three things: a passion to be in business--and sometimes that overwhelms the other two--and the second one is to have a vision, or a business plan; and the third thing is to implement the vision. Most businesses, their passion overwhelms the vision, and they the execution. And the only reason maybe they get a business plan is to get capital loan, to get cash tasks? organized, but I would say 80-90% of the businesses we work with have no business plan. Or if they do have one, they haven't dusted it off in years. They are implemented into? staying alive every day. And growth means that any time they get a big project, and they have to get more capital to hire more people, because the government--for example--doesn't pay up front or give seed money, so they have to go out and borrow. Well to do that, the banks say "We'd like to look at your business plan," so they go dust it off, and they're back to vision again. So, as counselors, when we interview people and counsel them through the five steps, we ask, "I understand your passion, 'cause you're here, and you've got a business, your doors are open, you're working out of your home, or you're working for some big corporation, or you're working for your business, or somebody else's business, and you sell them for them...and now, tell me about your vision. What's your revenue targets, what's your growth plan? What're you gonna look like? Give me a vision so I can buy into it. Because if a counselor can bind to a vision, then they can counsel you into your execution." And that's why we stick with those three things. And then, of course, if they implement well and measure their fact, get some type of measurement metrics, it helps to know the shortcomings of businesses in Nebraska. ...measuring their success...they think success is making payroll, or expanding and hiring a couple of people. And Nebraskans also believe that what happens in Nebraska, stays in Nebraska, and this isn't Vegas. It's only in Vegas. Nebraskans have had to learn, we counsel them, we teach them, it's globalization now: whatever you make or whatever you provide can go anywhere in the world. So what happens in Nebraska leaves Nebraska, that should be the new motto. And that's what we try and teach. And those that do that make the most money, and help us achieve our goal of \$100 million and creating or retaining 2000 jobs.

Business/Regulatory/Economic/Financial Environment:

Before WWII, the city was set up mainly for goods and services by ethnic groups. So all your cattle and produce and commodities were all done in South Omaha. All your business services were done in downtown Omaha, and then the communities lived between 72nd street towards the city, and everything west of 72nd street, where we're at right now, was rural and agriculture, and that includes the rest of the state, which is rural. Really the only urban area of Omaha at that time was 72nd and below. Because of WWII, and the men that were mobilized for war, they served in the same units, and when they went over to Germany and Italy and France and everything, the African-American, Latino, and Bulgarian, and Czechoslovakians, and Italian, all became friends. Why? Because they were Nebraskans, and they didn't want to be in

the Missouri units or regiments. So they became buddies, and after three years, they became real good friends. And when they came home, the neighborhoods, the ethnic groups started tearing down. The need to have slaughterhouses in South Omaha dissipated, the way they did the products and the services and processes. The banking industries that moved into town, and the insurance agencies that moved in here, because of the work ethic in the center of the United States, the Heartland... Offutt was built in the Heartland to make sure the President had a place to come into the country, not on the coastline, and that's what the Strategic Air Command is out there, and the missile silos were put out in Western Nebraska, during the big Commie issues in the 50s and 60s, when the Cold War... So after all that dissipated, all the neighborhoods started breaking down, and people started selling goods and services, no matter what your name or ethnic group was. No one discriminated as much anymore. So, there became more services and there became more goods. So that's what Omaha is now, is a big service community, and I would say of the 160,000 businesses in Nebraska, we break it down by about 22,000 businesses And there's either micro-businesses, or there's businesses. A micro-business is the same thing...according to federal law, 8 people or less. State of Nebraska 5 people or less. And everything else is either middle business, or it's small, they don't even call it corporate.

I think—people stay married together longer here, which big corporations like that. If you were to go to a press club party in L.A., the men in their 60s and 70s would not be sitting with their wives, because they've been divorced two or three times. You go to the same Woodmen of the World? event here, First National Bank, Con Agra, whatever, and you look around the room, you have couples that have been married forty, fifty years; that's pretty conservative stability, not just in the color of skin, but in the manner of what the community is. Another thing is Christian based belief. Here in Omaha, you have a strong parochial belief, of Catholicism, Catholics. Now as you get out in the state, it changes, Lutheran and others, and there's not a whole lot of Baptists like in the south-east, but it's Christian-based, and on Sundays, people--it's culturally acceptable to be a Christian and do Christian practices and business, it's not If the boss wants to come in and say a prayer that they be successful in their next business venture, everyone would actually say the prayer with him. And what that fosters is teamwork. So I ask a lot of true Christians, and I can say this in Nebraska—I couldn't say it in other parts of the country—“ Jesus Christ died on the Cross, and he died...and his business plan was written..the Bible was written later...but his belief system...you know on how he expounded his thinking and that...how did we all become Christians? How did all these branch offices open around the world, all these different segments? How did he expand in to the market? Well all of his disciples were gone, except two: Peter and Paul. Peter and Paul left the market area because they didn't want to be crucified, and they start going to other parts of the [Mediterranean] and telling people about the Gospel, the business, of Jesus Christ, about Christianity, and by doing that, they expanded the business, and then they told the stories, and those stories were written down, and the [NEW, NOT OLD!!!] Testament was written, and the business plan, in that example...and so a lot of times when I talk around town to networking groups and Christian-based groups, business people, I go “Who's the Peter and Paul in your business? If you're complaining about the government, and you're complaining that your business is stagnant, who's going out and

spreading the gospel about your business? If you're truly a Christian and you believe in the of Christianity, well then why are you letting it down? You should be out there with that huge faith behind you." Well I believe here in Nebraska that people believe that, they believe and they're Christians. And they have this spirit that they can't fail, Christian belief, the heritage they come from... So when they need somebody, and I go "Who's Peter and Paul?" and it's funny, every one of them, and I've been here five years, they always come back to me, they go, "Andy asked me this. Well I'm Peter and my wife's Paul. And this is what we're going to do..." It's just a way of thinking, and I think that culturally it effects...you know, the Heartland... we just created a new thing called Silicon Prairie...the word Prairie's put on...because really, what we're sitting on is the prairie, it's been developed. When Lewis and Clark came through, this is the prairie, they didn't have any trees left when they crossed the Missouri [river], it's prairie, and the wagons and everything...well this is the part of the middle of the country where there's a balanced budget. People don't spend more than what they earn, including the state government. It's the only state that has a unicameral, one government. When you pass through here, you have to pick up the and the business practices of what's in here. Unemployment rate in the country is 9-10%, here it's 4-5%. People sit back, have investments, Berkshire Hathaway; when you keep looking at stability, conservatism, it's right here in the Heartland. When other people look at that, and they want to invest in technology, technology transfer, small business, innovative research, they think, "You know this may be the place to do that", and that's why down in Lincoln, where the state fair was, that's going to be one of the largest incubators in the country, like a research triangle of idealism and creativity, because they're going to say, "You know, if you hire these people"—and when Google came here—because they want to hear people speak the [English] language that has a diction that everyone can understand everywhere; it's not Southern, it's not the Bronx, it's not L.A. "...everyone can understand them, so we'll have our call centers here." And the people will show up to work because they have a work-based ethic and they'll work a 40 hour week.

Community Partner Interview 7: TM, of NBDC

Approach to assisting: Help with business plans

(Detail approach to assisting):

Okay, first of all we look at what type of business they have. Since here the PTAC side of our, of the NBDC works with government contracting and essentially selling your goods and services to the government we have to make sure that the product that they have essentially is able to work with what the government needs.

So we take them into our program, we look at their service, their product; we make sure they are a viable business. For instance if they say they are a woman owned business, we have to make sure they are 51% woman owned.

So we do take a look at their site and we make sure that everything is in fact viable, is accurate, they are not lying, everything is good to go.

Well we go ahead and we look at what their plan is, what their plan for working with the government is. We look to see like I said, if their target market is suitable for the government and then we begin the process of registering them with the government.

So you have your CCR registration, your ORCA registration, things of that nature, registered with the FBA, making sure everything is online for government contracting needs.

What we then do next if we find out their business is in fact suitable for government contracting, is we then put them through our process here. We educate them on what we do and we initiate bidding and solicitations with the government.

And we actually have a service here that offers free bid match processes and they go through that, they receive solicitations and they go through it and see if it is something that in fact their business can use and their business can work with if the proposal suits them I guess I should say.

I would say most of the people we meet there are probably about 50-60% that is successful in our registration.

[Okay and these 50-60% and then what would you say the percentage is for getting those government contracts actually?]

About 20%.

[Value of business plan]

It definitely would be strategic, it allow you to see where your business is going, where it needs to go, where you want it to go. So I would definitely say about a strategic, you would also probably need to have some sort of, I am looking at the marketing side simply because I believe that is essential, so a marketing mix analysis.

How you are going to put your product within your target market so you have the demographics. How it fits in with the, I would say exterior workings so you have your political environment, you have your culture environment, social, etc.

Perception of Tech in Small Business Community:

Some of the businesses it is usually a daunting process, for them technology just scares them but you are also working with older individuals too. Many of our businesses are onboard with technology. A lot of the ones that we deal with are high Intel agencies too that are able to work quite well with it. So they use technology, most seem to work well with it. If they have an issue with it, we try to help them.

Influence of Tech Exemplars for Small Business:

Looking at our veterans group, we hold a veterans forum each month where essentially one of the main purposes of it is to bring veteran groups in that, which should do business with each other or people that wish to do business with veterans. And work together and learn more about each other's businesses and do contracting and what not, and these businesses actually look to see like you said, what each other is doing, how they are moving, in what direction and they feed off of that or they get involved with that company.

Definition of Successful Small Business:

[follow through]

People that have a substantial plan, a substantial vision of what they see their business doing and they have a way that they know how to execute it. A lot of times what I see and I work with, the group of people that I work with here is I would say it is diverse but I work with a lot of veterans here too.

Such as things like Signal 8 Security, which is the largest security, group here in Omaha? They do have substantial follow through and they are successful because of it.

When you see businesses, there may be more than I am aware of but when you see the businesses that look at the future, that look at working internationally. That look at really growing their business and not just looking at financial projections but looking at making a difference in how their products can truly benefit the government, benefit the people those are the ones that obviously their aspirations are different and are more successful.

Teams are essentially in my opinion, hugely important because there are a lot of people who tend to micromanage on an individual level and if their business starts to grow and they cannot function anymore within that one person organization, they do need to expand on out more and if they are not able to do that. If they are unable to work in teams appropriately and designate tasks to specific organizations or I think they will eventually fail.

The businesses that I see, the successful businesses are those that win contracts here so it does not matter the dollar amount that they win; it is whether or not they have followed through on their proposal. They have won their contract, they have fulfilled their contract and they have received their money in return for it.

Deprivations of Small Businesses:

Okay typically the challenges are their business plan, most of them do not have a suitable business plan that can establish correct financial projections through their organization and they do not have, which essentially means they do not have proper execution. And that's where we see the largest problems that our businesses face.

[Oh, if you were to pick a primary obstacle that is preventing many of the businesses you work with from succeeding, what would that be?]

Motivation.

Business Processes in Small Businesses:

Some of them do [have well established business processes] but not all of them. If you look at someone like I said before like Rotella's Bakery that has a great establishment that can have these amazing projections. They are on their way; they know what they are doing. But then you have businesses where you have people that are just starting up their business and want to work with the government and really do not have to processes in shape for them to develop their business.

Aspirations of Small Businesses:

I think the aspirations for community members, I think on an individual basis everybody is looking to make it in the economy to be able to financially take care of their families and what not.

Many use their business not necessarily they do not see it growing huge, they see it as something that can help them make the living comfortably. Does that kind of make sense?

Business/Regulatory/Economic/Financial Environment:

The community is actually quite extensive and diverse. We work with large organization such as places like -----'s Bakery, other numerous large ones and small ones that even skim down to very little small mom and pop shops or things in peoples houses that they are trying to get developed more sell their good and services to the government. So the diversity is huge, it can go anywhere from one employee to 500 employees to 1000 employees.

Well the government as you know is notorious for having red tape and bureaucracy wherever it goes. What we do and what our program here does which is procurement technical assistance, we work at navigating that. We work at getting you through the red tape, looking at the organizations you need to register with, ORCA, CCR, The Biz, things of that nature and navigating the lingo of the government, which is essentially one of the hardest things for people to navigate.

Level of Service Provider Integration:

I do not know if I can answer that completely because I am not aware of all the government groups necessarily that would be in close function with us. But the ones that I have seen like the Small business association it seems that we all work quite well together. We are able to bring in government representatives that will come and do workshops here so that would also be something that we would all work together on. But there is probably some sort of disconnect, there always is between the government and lower agencies but I feel like here it is pretty good.

[Is there a tracking of people as they go from agency to agency, is there cross agency tracking that goes on?]

Not that I am aware of.

[Okay, do you think that that would be beneficial?]

it definitely would be something that people could use.

I used to work for the justice department and many often times actually, quite often we would have to refer to different government agencies and essentially we would never know if there was an issue unless there was a problem back to our end which stated the consumer, the constituent was not helped in a certain way. We would say on our end when we referred them to that agency but we do not know what happens after that unless we call and verify.

Policy recommendations for fostering ME growth (Community provider standpoint):

It depends, and I am going to say it depends because there are different individual people learn differently. You could do some of this in an auditorium base but it would have to be with people who are fairly aware of their organization, what their organization needs and how to move forward. That is going to be your more motivated individuals.

The individualistic attention that you are talking about is for people that may not necessarily have the college education or the experience within this type of industry to really fully develop. So they will need more individualized attention.

Community Partner Interview 8: JC, of NBDC

Approach to assisting: Publicizing agency

Perception of Tech in Small Business Community:

I think that is really more generational depending on what people are. I think the younger someone is. I have a grandson who is 3 and he plays with an iPad all the time. Okay. Kids used to have a rattle in their hand. He's got an iPad. I think it's obviously the wave of the future. I think you have to have it. I think it's absolutely necessary and as I mentioned, the younger a person is, now this is again stereotyping, but the younger a person is, the more comfortable and confident they are with it. Like my mother looks at a computer and screams. She just doesn't understand that. I think print media is going to go away. I think people are going to have to embrace it to be successful, which is very good. Now here is the flip to that. The flip side to that is that younger people oftentimes have difficulty with one-on-one communication. Face-to-face communication. If you see 2 teenagers sitting next to each other, they're texting. They're not talking.

I think what they're probably doing is saying okay I'm going to run this business then this is what I need now where do I go? Again, I hope they're going to call Nebraska Business Development Center because we've got incredible technology training here. There are a few companies out there that are very successful in technology training, but I think they're going to research it out and find we're the way to go. More so than looking at the big guy, but you know small businesses don't compete with the big business. It's a different mind set. They're looking at how am I going to make payroll, how am I going to make this business grow. They're not going to be looking at the President of Union Pacific. Totally different. I think they're going to say here's what I want to do, here are my needs, now how am I going to get those needs met? I think it's going to be someplace like NBDC, there's going to be a computer consultant, New Horizons, something like that I think.

Influence of Tech Exemplars for Small Business:

I think small business people are pretty innovative and pretty open minded and they're pretty gutsy and I think they're going to look at what's there. I think they are going to look at those large ones. There are a few of them who are, the perfect example to me, and I know them well. I know all those guys, but ----- to me is a perfect example for the simple reason that he started out in a very modest background, met his wife when they were both sacking at Baker's supermarkets of Omaha. Went to UN. I'm sure he put himself through college, but look at where the man is. I think a small business owner is going to look at someone like that. He's maybe going to look at a Pete ----- . Pete was the kid who had a paper route to buy a bicycle and his dad, Joe, actually Joe's dad and my dad. Joe's dad and my dad worked together in Nebraska City. They were both in the building industry and Joe and Marlene [PH] ----- started out very modestly, extremely modestly. He was in business for twenty-five years before anybody ever heard of him. I think small business owners are going to look at that kind of success more so maybe than the corporate success.

Primary area of innovation in Omaha:

I think in Omaha, especially Omaha is very, very sophisticated off of Lincoln and possibly the rest of the state. I'm not as familiar with the outlying areas as I am with Omaha, but I think definitely, I think there is a lot of innovation research going on here. I think there is a very strong entrepreneurial spirit. I know one thing too, that Governor Dave Heineman is very big on trying to keep people in the state of Nebraska. Someone like you who has been here, has left, has come back to Nebraska, and to try to keep you here. I know that there is a big push to keep younger people in the state of Nebraska. I just think it's a great community in which to grow a business. I think maybe there is an inside track for some that makes it a little bit easier than for others.

Definition of Successful Small Business:

Anybody that can stay in business and make a payroll. If you made a payroll, you're successful. I started twelve different businesses and it's like it's not easy. I always tell people because I've

done a lot of consulting in this area too. The small business owner is the last guy that gets paid. If you get anything. It's very rewarding. It's very exciting. You're in control. It's very frightening, but it's also a huge confidence builder. Ninety, about ninety percent of the people who talk about opening a business never do it and then the 10 percent that do, some succeed, some don't, but I always feel like they're a success because they tried. It's a very different mindset. That answer?

Regulatory/Economic/Financial Environment:

Oh, way overregulated. We have too much government and that's what it is. It's government. It's too much. Let people do what they're doing.

OSHA regs. All those things and then depending on the kind of business you're in you may have another governing body that has to, that regulates you in some way, shape or form. Certifies, registers, whatever. Inspects. I think that and then you get into that and that gets bureaucratic. It takes forever. I'll give you an example. Worked with a Real Estate Developer on a development. We had one, we had an inspector who, this is no lie, was there 6 times before he finally approved it. He was new; he was minority; he was making a statement. Did you make my life hell? Yes. Was it necessary to be there 6 times? No.

I think taxes are way too high. I think taxes are way too high for everyone, but I think for the small businessperson, example, you're paying all your own FICA, you don't get the employer match. That is what fifteen point two percent? That is a chunk.

Property taxes are horrible.

I'll tell you what we see here, which is interesting. We get an awful lot of really wonderful letters. People are looking for grant money, free money. There's no free lunch. I think for small businesses, what people will do, most of them will self-fund, they'll get funding from family and friends. It is very difficult with the banking industry and the lending industry right now. It is very difficult to secure financing. If they have a great business plan we can help them here at NBDC, which is very good. I think we can kind of help them get through the maze, but you do have to have some equity. You've got to have some skin in the game before you get any funding.

It is hard and that's, it's like the chicken and the egg. How do you get in on this? There's the angel investors and there are a lot of groups and thing like that, which is really good, but again it's how do I make myself marketable enough that they believe in my business and they want to invest in this? I think you just have to try. You have to be real tenacious, but I think probably most of it is either self-funding or funding from family and friends and I'm sure some people use equity in their house and stuff, maybe second mortgage, do a line of credit, something like that.

Level of Service Provider Integration:

I think it's good. The researchers are here in this city .. talk to me about Omaha. The resources are here. Example: Nebraska Business Development Center. We're here, but again, to me,

NBDC, and that is part of my job, should be a household name like BubbaGump Shrimp. We're not. Why not? We're serving. We're trying to figure out why people don't know about us and what we can do about it because the services here is incredible. The knowledge is incredible. Of course, you've got Department of Economic Development that is very helpful. I think a lot of it is people are not sure where to go and to get somewhat bureaucratic and you have to dig and dig and dig. The information is not readily available, but I think if you're an entrepreneur you're going to be willing to research out that information. You don't expect somebody to spoon-feed it to you. You're going to research that and ask questions and questions and questions, but it takes a little work.

