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EMPLOYING SOCIAL CAPITAL BY SMALL & MEDIUM ENTERPRISES TO BEAR FRUIT FROM WIRELESS COMMUNICATIONS

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ABSTRACT

Wireless and mobile communications can save Small and Medium Enterprises (SMEs) significant time, money, and effort due to the mobility, flexibility, and ease of use mobile devices provide. SMEs that use such innovations can improve productivity, decrease costs, and enhance the quality of the business process. Lacking technical skills and financial resources, SMEs need special support from local communities and governments in order to survive the severe competition of big chain stores. This paper proposes a model for SMEs to adopt new innovations—those of wireless communications—by employing social capital. We have used a case study approach to show that social networks can supplement the lack of technical skills and financial resources of SMEs and enable them to benefit from emerging wireless technologies. The contribution of this study lies in bringing awareness of utilizing social capital and community resources to incorporate emerging innovations and improve the competitiveness of SMEs.

KEYWORDS

Social Capital, SMEs, Wireless Communications

INTRODUCTION

Facing competition from big chain stores and lacking financial resources, Small and Medium Enterprises (SMEs) must explore new ways to improve productivity, increase market share, and decrease costs. These new ways include building partnerships with local societies and organizations and taking advantage of new innovations. The goal of this paper is to tie together three prominent issues of today—that of social capital, SMEs, and wireless communications. All three entities have received much attention in research and in practice, but little work has been done to integrate the three of them. Incorporating wireless

communications can save SMEs significant time, money, and efforts due to their mobility, flexibility, and ease of use. A study by Sage Research (2001) concluded that wireless communications can save from \$150 to \$750 per week per user in the health sector. SMEs, particularly in underserved and rural communities, should collaborate with local communities, non-profit organizations, and local governments to establish strategic collaborative partnerships, including adopting new innovations and facilitating access to financial resources, to maneuver through obstacles in the business arena (Abdelaal and Ali 2006; Boethel, Averett, and Jordan 2003). Since SMEs constitute a vital part of a community's economic landscape, we address the following research question: *How can SMEs utilize social capital to take advantage of new innovations to improve business performance?*

We have conducted a case study of an SME to show that social capital and community support can supplement lack of financial resources and help SMEs to adopt new innovations such as wireless communications. The main contribution of our study lies in proposing a model that provides insight into the role that social capital can play for SMEs in substituting lack of financial resources and facilitating adoption of innovative technologies. The paper is organized as follows: the next section provides background on social capital, SMEs, and innovation. Sections following it talk about details on the case study and the proposed model. The paper ends with some concluding remarks and implications for future research.

SOCIAL CAPITAL, SMALL BUSINESSES, & INNOVATIONS

Social capital is a key concept in business, economics, political science, organizational behavior, and sociology. Literature on social capital has investigated the effects that it has on various segments of business activities and in the overall economy of communities. Some of the popular definitions in use today have been adapted from Bourdieu (1983) who refers to social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group of people by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." Working off Bourdieu's definition of social capital, Coleman (1988) provides his perspective to the term by stating, "Social capital is defined by its function. It is not a single entity, but a variety of different entities, with two elements in common: they all consist in some aspect of social structures, and they facilitate certain actions of actors within the structure." Lin (2001) defines social capital as "the investment in social relations with expected returns in the marketplace." It is evident from these different definitions that social capital refers to the characteristic of social interactions and networks that can provide value added resources to a society. Impacts of social capital can be broadly classified as (1) getting information (Granovetter 1973); (2) transfer of knowledge, innovation, and diffusion of technology or practices (Ahuja 2000; Brown & Duguid 1991); (3) combining complementary knowledge and helping solve problems (Greve & Salaff 2001; Von Hippel 1988); and (4) brokerage (Burt 2005).

Greve and others (2004) showed that a high degree of social capital helps bring about increased productivity of individuals working within a project-oriented environment that is devoid of any strict organizational routine. A study by Cooke and Wills (1999) looked at SMEs in three European countries and showed that adopting policies that promote new innovations helps build social capital and improves business performance. These studies provide evidence of the positive effects that social capital can have for SMEs.

Our focus in this paper is on how SMEs employ social capital in order to bear fruit from emerging innovations. In a study of technology innovation within chemical industries, Ahuja (2000) showed that the number of direct and indirect ties of a firm is positively correlated with innovation output. Brown and Duguid (1991) provide insight into how informal communities-of-practice within organizations collaborate to exchange perspectives and form communities-of-communities to promote learning,

working, and innovating. Both these studies show the positive impact of collaborative business relationships on adopting new technology innovations.

Akkeren and Harker (2003) conducted a study on Australian SMEs and their need for mobile technology such as the mobile Internet to supplement their business activities. The study revealed three possible areas of application: communication (through the use of email), e-commerce (to help trade with suppliers and customers), and security (to assist in monitoring the premises of the business). A report by Vodafone (2005) showed that more than 85% of SMEs in South Africa and 90% in Egypt used mobile phones to increase profit margins. By using mobile phones, businesses reduced travel cost and time, increased the number of customers, increased product turnover, and streamlined administration. A report by T-Mobile (2006) noted that efficient use of mobile technologies by SMEs to handle customer-related issues can improve customer relationships and the competitiveness of the firm.

THE RESEARCH PLAN

This paper develops a model that depicts the role of social capital in substituting the lack of financial resources that are necessary for SMEs to adopt wireless communications. We used a case study to show how social capital serves as a key driver to enable SMEs to be aware of and to reap the benefits of such innovation. In this case study, a group of students from an IT for development class at a university volunteered and installed a WiFi wireless system for a small business in Omaha, Nebraska, using recycled equipment. Research data was collected from multiple sources: 1) through action research during the implementation of the project, and 2) from brainstorming sessions of nine students and two professors of the class. Based on this case study and the literature review, we developed a model for taking advantage of the social capital in society to integrate wireless communications into the business process of a small business. Social capital in this context includes providing a technology business plan to the small business, using students' technical skills for the project implementation, and using university donated recycled equipment. We argue that the social capital, provided by the students in the IT for development class, compensated for the lack of financial resources and technical skills needed by the small business being studied in order to adopt wireless communications for access to information, market penetration, and cost reduction.

THE HALFWAY HOUSE CASE

The business process of the Halfway House is facilitating the rehabilitation and reintegration of former drug abusers into the community. It provides this group of people with support and consultation and helps them to recover. The owners plan to expand the facility to become a treatment campus for a large number of individuals. While this business is a successful treatment facility, it lacks financial resources, IT infrastructure, and manpower. One major need of the Halfway House was a means of providing guests with easy access to the Internet to enable them to benefit from the wide range of resources on the Web. The owner lacked the necessary IT skills to employ wireless communications and IT in general in the business process. To satisfy the requirements set forth by the business owner, the IT students developed a technology business plan and installed a wireless system through a service learning class. A win-win partnership among all the parties evolved. The university donated the workstations through its IT recycling program. Students developed the technology plan and implemented the system at no cost for this small business. The university engaged with the local community, supporting a key component of its mission as a metropolitan university. Students obtained more IT skills and applied those in a real setting. The small business obtained a functioning system cost-free.

CASE ANALYSIS

In analyzing the data from our case study, we identified and classified the main factors and issues that were essential in incorporating wireless communications into the business process of the SME. Table 1 summarizes the Halfway House's use of wireless communications before implementation of the new wireless infrastructure. Based on discussions with the business owner and members of the service learning class, the table also shows some of the possible usages that the new wireless infrastructure will provide. Qureshi (2005) summarizes the ways ICTs help bring about development within a single organization or society. By using ICTs, SMEs may achieve better access to information and expertise, improve competitiveness and access to markets, enhance administrative efficiency, increase learning and labor productivity, and reduce poverty through job creation and wage increases. We used these factors to help categorize the brainstorming session outputs from participants in the project as well as the requirements specified by the business owner. In addition, the factors provide a theoretical basis from which to analyze the possible benefits that emerging ICTs can have for the Halfway House (Table 2).

	WiFi/ LAN	Laptop	Mobile phone
Current usage	Only fixed cable internet connections	Simple management operations	Simple management operations
Suggested usages	Build a WiFi network for seeking jobs, online tutorial, VoIP, access to information	Database and accounting	SMS, video clips, and images

Table 1. Current and Suggested Uses of the Wireless System by the Halfway House

Access to info/expertise	Competition /access to market	Administrative efficiency	Learning and productivity	Poverty reduction
- Obtaining legal info from the Web - Access info about residents - Job market search by residents	- Providing extra facilities to residents (e.g. VoIP, emails, entertainment, web browsing, news, chatting)	- Time and effort savings(e.g. to access info) - Money savings (e.g. obtaining free equipment, connecting few people at little/no cost)	Residents -Online tutoring - Job market search The owner -Legal information - How to run a business	Help residents to search jobs on the web

Table 2. The Impact of the Wireless System on the Halfway House Business

The output from brainstorming sessions of the IT for development class, shown in Table 2, combined with background information on the Halfway House resulted in the identification of possible impacts that the new system could have on the business. For example, through the use of the Internet, the owners of the business could obtain legal information on activities affecting the business, such as new government policies for former convicts. In addition, the Internet will could enable the residents of the Halfway House to access online courses and search for jobs. Table 2 also shows administrative efficiencies that could be achieved. The system also could help the firm to increase competition, size, and productivity of the business.

PROPOSED MODEL

Based on this exploratory case study, we suggest a win-win partnership for integrating wireless communications in SMEs through social networks in the society. This partnership is a result of collaborative efforts between SMEs, government organizations, non-government organizations, IT students, recycling programs, and academic institutions. Table 3 shows the potential benefits for and

contributions by each entity in such a partnership. For example, universities can help SMEs by providing skilled students for technical assistance to the business. In return, the university benefits through increased community engagement and education quality. Governments can participate by offering special tax treatments to SMEs and in return benefit through poverty reduction and an improved economy. Therefore, the wide range of benefits that various entities in a social network can bring to the business is evident. We developed our proposed model, shown in Figure 1, by integrating these different collaborative partners along with their contributions. Figure 1 shows the impact of wireless communications on SMEs through a win-win partnership. The main driver of this partnership is the potential social capital in the society and available resources in the community. This may include student contributions, recycled equipment, and open-source software. In addition, wireless communications benefit from the increased bandwidth of new wireless standards, free airwaves (e.g. 2.4 GHz), flat-rate of

	Government	SME	Students	Recycling programs	Academic institutions
Benefits	Social and economic development, crime and poverty reduction, bridging the digital divide	Increased productivity, cost savings, market penetration, revenue diversification	Learning experience, connections, scholarships, credit hours	Special tax treatments, brand exposure	Community engagement and partnership, grants, recruiting
Possible contributions	Frequency deregulation fund, sponsorship, special tax treatments, student scholarships, hosting WiFi facilities in public places	Hosting the WiFi facilities, funding equipment, recycled equipment, management	Manpower, technical support, management	Equipment	Manpower, expertise, technical support, old equipment

Table 3. A Model for Adopting Wireless Communications by SMEs Taking Advantage of Social Capital (adopted with modification from Abdelaal and Ali 2006)

the Internet versus the metered rate of cellular systems, and the signal sharing among many users as shown in Figure 1. However, these WiFi systems have management, security, and reliability issues (Sage Research 2001). Nevertheless, a long-term partnership with academic institutions can help overcome these issues. Building such WiFi systems for SMEs will provide the necessary platform to bear fruit for the wide range of benefits of wireless communications. Laptops, PDAs, WiFi phones, wireless printers, and other wireless devices could be used to improve the business process of SMEs. The main applications are internet access and VoIP. Some of the main potential benefits include customer attraction, brand exposure, time saving, money saving, and flexibility (Sage Research 2001). Osterwalder and Pigneur (2004) believe that ICTs, in general, have the capabilities to improve business partnerships, offer shared value propositions, create multi-owned distribution channels, and increase profit from shared and diversified revenue streams.

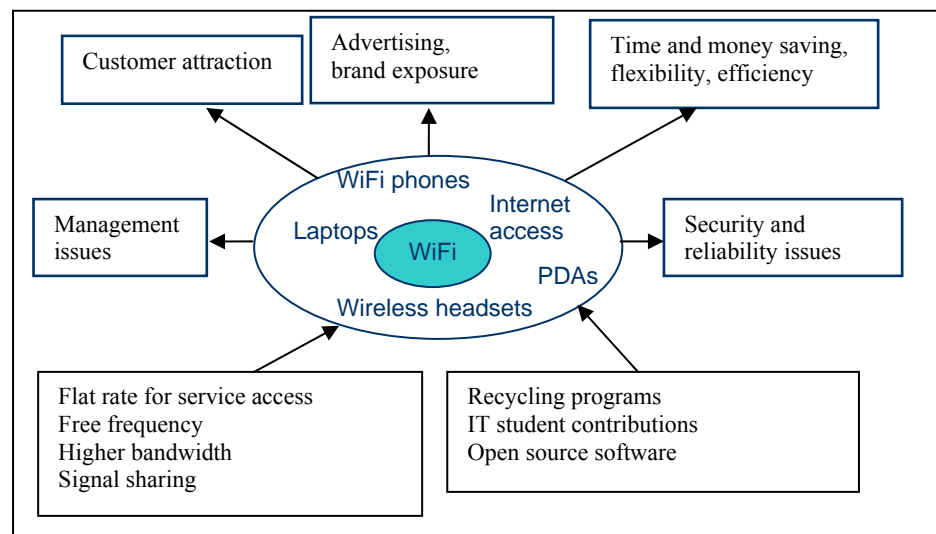


Figure 1. Model for Integrating Wireless Communications in SMEs

CONCLUSION

The lack of financial and technical resources of SMEs can be supplemented by the social capital in the society. Social capital can enable SMEs to benefit from wireless communications and their wide range of benefits. A win-win partnership between SMEs, academic institutions, IT students and other volunteers, recycling programs, and government entities can facilitate the adoption of wireless communications in the SME's business process. This partnership is motivated by the mutual benefits and incentives that each partner may obtain. The work presented in this paper is the first phase in an ongoing research project and subsequent work will focus on measuring the impact of the implemented wireless system on productivity, cost reduction, and overall business performance. We plan to validate and further refine our model by applying it to other SMEs in various settings and to collect data on user satisfaction with the new system.

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