When the Opportunistic Adoption of Internet Technologies by Small and Medium-Sized Enterprises Segues into Strategic Use: Cases from a Developing Country Context

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ABSTRACT

It has long been established that small and medium-sized enterprises (SMEs) are laggards in the adoption of information systems and technology. Further, when adoption does occur it is more opportunistic rather than strategic. Strategically, information systems (IS) are used in order to either lower the costs of production, coordination and transactions or to add value to the product, process or service. Against the background of the need to better understand SMEs and their use of information and communication technologies (ICTs), specifically Internet technologies, this paper highlights the cases of two SMEs whose opportunistic adoption of Internet technologies resulted in changes to their business models, target markets and increased business value, with technology becoming a key strategic driver for the companies.

Keywords

SMEs, cases, e-commerce, Internet technologies, developing country

INTRODUCTION

The benefits that information and communication technologies (ICTs) may be able to provide to organisations are varied; ranging from the ability to store and retrieve information electronically to facilitating the establishment of complex digital network relationships. Irrespective of firm size, the use of ICT can be beneficial to companies, and as they proceed along this continuum by adopting more complex technologies, it is perceived that both direct and indirect benefits increases. In the case of SMEs it has been espoused that Internet technologies offer a unique opportunity for ICTs to be used to extend their breadth and reach within and outside of national borders. According to da Costa (2001, p. 3) "the Internet and e-commerce have enabled small companies to become an increasingly powerful driving force in the emerging global marketplace, creating new jobs and spurring innovation and economic development all over the world". That SMEs contribute to economic growth and are invaluable partners to large companies are no longer debatable facts (Mutula and Brakel 2006; Apulu et al. 2011). Various factors affect the adoption of ICTs; perceived direct and indirect benefits have been highlighted by SMEs as factors that determine their engagement of e-commerce. Additionally, it has been found that Chief Executive Officers (CEOs) who perceive that e-commerce will add strategic value to their organisations and that there are long-term indirect benefits to be received from e-commerce are more positive towards adoption and implementation (Scupola 2004; Grandon and Pearson 2004).

This paper uses descriptive case studies to relate the journey of two small companies in Jamaica and the way in which the adoption of Internet technologies impacted their businesses. Woven in the narrations are the ways in which factors such as CEOs awareness and attitude toward ICTs affect the adoption process and the eventual outcome of the use of technology within the business. It also highlights some environmental conditions faced by SMEs in developing countries and the measures used to circumvent these in order to utilise Internet technologies. The data for the research was gathered via interviews with personnel from the companies. Each case company was visited at least twice, and where relevant personnel along with the CEOs were interviewed. Triangulation of data was achieved by conducting document analysis for the case companies where possible.

SMALL AND MEDIUM-SIZED ENTERPRISES: ICT ADOPTION AND STRATEGY USE

Apart from the opportunities to form new alliances and spawn new products and services, the adoption of the Internet can also allow a company the chance to extend its reach globally, that is, companies will no longer be confined to their specific geographic location but may be able to compete internationally. It is not a binary decision for organisations to adopt ICT; there are numerous factors to be considered when the decision to utilise ICT is being contemplated. This is especially so in the case of SMEs since there is often a lack of financial and human resources, which contributes to a weakness in terms of financing, planning, control, training and information systems (Thong 1999). Despite these limitations however, small businesses have advantages that are particular to their characteristics. Decisions are executed and implemented rapidly and there is a capacity for adaptation and short-term reorientatio. From a strategic and administrative point of view, SMEs are mainly organic in nature and can be seen as an extension of the entrepreneur's own personality (Mpofu and Watkins-Mathys 2011). Thong (1999) found that technology characteristics such as relative advantage and compatibility play important roles in the decision to adopt information systems. SMEs with CEOs whose disposition towards information systems are positive are more likely to adopt since their perception of ICT is that it is beneficial, once it is compatible and comparatively easy to use. The individual characteristics of the CEOs as well as their attitude to ICT, innovation and their level of ICT knowledge are potent determinants of adoption due to the fact that they are the main decision-makers in the organisation (Beckinsale et al. 2006).

It has been theorized that SMEs' decision to adopt a certain technology has been greatly influenced by the perceived operational benefits that the adoption of the technology represents, rather than for strategic purposes (Mehrtens et al. 2001). Sadowski et al.(2002) in an exploratory study of strategic use of the Internet by SMEs in the Netherlands concluded that SMEs are opportunistic in the adoption of the Internet and few intend to draw on the strategic advantages it provides. Strategically, information systems (IS) are used in order to either lower the costs of production, coordination and transactions or to add value to the product, process or service (Levy et al. 2001). IS strategy is equally important to small and a medium-sized enterprise as it is to their larger counterparts. Like large companies, small firms need to be competitive and possess efficient operations. Information systems can help to achieve this, therefore strategic employment of IS within the organisation is crucial. It has been acknowledged that adequate strategic information systems' planning is rarely undertaken by SMEs (Hussin et al.2002). As noted by Blili and Raymond (1993) IT requires substantial investment and its strategic importance means that the choice must be made with strategic objectives in mind. They proposed that a top-down approach should be employed by SMEs with regard to information systems strategy (ISS) thereby ensuring that owners/top managers are the drivers of the initiative.

Levy and Powell (2000) takes a processual approach to ISS and SMEs, advocating that business context, business process and strategic content are important to ISS planning. According to them understanding the competitive environment in which SMEs operate is crucial since knowledge of the particular market and relationships with customers and suppliers will provide an awareness of the pressures endured by the organisation. The business context encompasses the business strategy and objectives of the firm; and the business and competitive environments in which it exists. Since SMEs do not normally possess an outlined strategy, the owner's objectives are critical to the process of ISS. Hussin et al. (2002) found that in practicality, information technology maturity, technical sophistication and the knowledge of the owner were factors that determined ISS. While acknowledging that some SMEs undertake limited ISS planning, one of the conclusions was that in practice appreciation of the technology had more impact on aligning business strategy with information strategy. Further, Levy et al. (2001) in their focus dominance model found although systematic ISS planning may not take place, SMEs do align their information systems and strategic contexts expecting the outcome to be beneficial. On a cautionary note, Southern and Tilley (2000) opined that there is a complex relationship between ICT and SMEs. Moreover, Sadowki et. al (2002) concluded that SMEs were opportunistic towards Internet adoption, and while there were strategic benefits, the organisations motive was more practical than strategic. However, it is important to point out that though SMEs may not undertake ICT adoption according to an explicit information systems strategy, the implementation often leads to strategic use by the organizations (Levy et al. 2011).

CASE 1 – USING INTERNET TECHNOLOGY TO CHANGE BUSINESS FOCUS

Aromatherapy Ltd., a pioneer of local products, was formed in 1996 by a husband and wife team. They began to manufacture handmade, island-inspired aromatherapy products such as candles and oils using natural ingredients. Originally, the company focused on targeting the local market by selling their products at local trade fairs but this changed as stated by the CEO: *"we started as an aromatherapy company and grew into a tourist gift company because aromatherapy wasn't popular in Jamaica at the time, therefore the only way to get products sold was to package them as gift items to*

tourists". The change in marketing strategy resulted in Aromatherapy Ltd. wholesaling their products to gift shops located in hotels. Aromatherapy Ltd.' adoption of ICT is atypical for firms of its size in Jamaica. The CEO can be considered to have above average ICT skills and has a positive attitude towards technology adoption. A few months after the start of the company a computer and Microsoft Office for word processing and Peachtree package for account management purposes were acquired. The adoption of Internet technology was motivated by reasons other than that of Aromatherapy Ltd. but the CEO became more aware of the opportunities and benefits of the Internet. By late 1997, the company began using email and had its first basic website created by the CEO, mainly for advertising their products online. The shift in target market inspired the decision to upgrade the website in 1998, allowing Aromatherapy Ltd. not only to advertise but to start offering their products for sale over the Internet. While the decision to offer e-commerce was straightforward, the implementation proved to be complicated. Aromatherapy Ltd. had a dial-up connection to the Internet via (at that point) the only telecommunications provider in Jamaica. This meant that there were barriers in terms of cost, access, infrastructure and auxiliary support for e-commerce. Moreover, there were no support services being offered through financial services for processing electronic payment. Additionally, the cost of getting the website upgraded and hosted in Jamaica proved to be prohibitive. The complexities of the implementation are captured by the following quote from the CEO:*"In 1998 it was a challenge to develop an e-commerce website in Jamaica. One of the main barriers was the inability to accept credit cards online since the banking sector was not offering this service. One alternative was to use facilities in the US but at that time one had to have an address in that country in order to do so. I did a lot of searching and finally subcontracted with a company in the US to warehouse, market and sell our products online".*

The outsourcing arrangement described by the CEO included the products being shipped to the US based contractor, Symmetric, who then fulfilled all orders originating online. Additionally, Symmetric were responsible for distributing Aromatherapy Ltd.' products to wholesalers in the US. Symmetric charged a hefty commission of 30 percent on the value of individual orders for this arrangement. The relationship was short-lived since Symmetric folded one year later meaning Aromatherapy Ltd. had to reconsider its e-commerce logistics. For approximately six months, the first half of 2000, the e-commerce features were disabled and the website was reverted to being used for marketing and advertising only. During this period, Aromatherapy Ltd. received orders via email from their US wholesalers and shipped the goods directly from their factory in Jamaica to the US. However this interim strategy proved to be costly to the company because shipping from Jamaica was expensive, and on a number of occasions the goods were damaged during shipment. It was not unusual for 30 percent of the goods shipped from Jamaica to be damaged by the time they reached the customer. According to the CEO: "*the process of shipping the goods was a hassle*" - the company suffered financially and lost customers due to the destruction of the quality of the goods due to the poor handling at both the port in Jamaica and the US customs. This experience made the company decide that it was more suitable to have an overseas distributor that had the responsibility of shipping directly to their customers. Since 95 percent of online orders come from the US and the other 5 percent from Europe, the ideal arrangement was to have a partner based in the US. In 2001 the company created an updated business plan, which outlined the refocus of their target market. It also enabled the company to identify the role of ICT in their operations although there was no written strategy for the use of information systems and technology within the organisation. The company also launched a new e-commerce website that was more sophisticated than the company's previous e-commerce website and had more interactive features. Having decided that it is more feasible to use a distributor located in the US to fulfil orders originating online, Aromatherapy Ltd. contracted 'Warehousing', located in Miami, to perform this role. Additionally, a UK based company called 'World Pay' was contracted to facilitate e-payment for Aromatherapy Ltd.' online sales.

The adoption and use of ICT is championed by the CEO who views the use of ICT within the company as a support to achieving the objectives of the business strategy. Accordingly he stated: "*ICTs are used as an efficiency tool to make manufacturing more efficient, and as a management tool to help the management of retail, do inventory management and stock control*". It is the view of the Operations Manager that the company now utilises as much technology as possible. The CEO is of the view that Aromatherapy Ltd. is still small but if using technology becomes the most efficient method then it will be adopted. His opinion is that the adoption of Internet technologies has been very beneficial to the company. The organisation also uses the Internet extensively to do research; they purchase materials online, utilise online banking and use electronic banking to pay salaries to their employees. Aromatherapy Ltd. is now an award winning manufacturer and distributor of aromatherapy and complementary products such as soaps, candles, aroma diffusers, oils, bath salts and lip balm. Their products are targeted primarily at the tourism market and are found mainly in hotel gift shops, boutiques and gourmet type stores. The company is a market leader and currently exports to 15 Caribbean islands, the United States of America, Canada and Europe. The company is primarily a wholesaler; one of its goals is to open retail concept stores in Jamaica, the Caribbean and the United States. The achievement of this goal is underway having now opened 4 retail stores in Jamaica, all strategically located in airports and popular tourist areas.

CASE STUDY 2 – GAINING BUSINESS VALUE THROUGH ICT

In 1987 the owner and Managing Director of what is now Brokerage Ltd. went into partnership with a friend. When that partnership failed, he decided to start his own company offering services as a customs broker in 1989. Seventeen years later Brokerage Ltd. is an established brokerage company providing services to some large import-export companies, such as Nestle, in Jamaica. The Managing Director has served extensively on the Board of the Jamaica Customs Brokers Association including as president, and in this capacity has been able to influence policy-making in the sector. The range of services offered by Brokerage Ltd. includes customs clearance, import and export processing, customs consultancy and haulage. The company is 100 percent owned by the Managing Director with whom all decision making rests. To demonstrate its commitment to client satisfaction and efficient service, half of the customs clerks employed by Brokerage Ltd. are stationed at the offices of some of their larger clients. The company offers a quick two-day processing time, which is guaranteed if clients implement the recommendations made by the Brokerage Ltd. team. The company has been awarded membership to the Jamaica Customs Fast Track scheme, a privilege extended to brokerage companies that consistently have less than 5 percent errors on their transactions.

The history and evidence of ICT adoption and implementation in Brokerage Ltd. is again very atypical to small businesses, but even more so to small businesses in developing countries. The high rate of adoption is directly attributable to the attitude of the owner/Managing Director of the company. The following quote from him encapsulates the enthusiasm with which technology is embraced: "*I have a local area network with a server. I have remote access set up on my laptop so anywhere in the world I am I can dial into my server and access anything I need. I don't have an IT person in-house, I have three IT persons that I use. Right now I am looking to buy another server, which will be mainly for storing data. On-site back-up is done. Everything I know about IT I learn from books and on-line but no formal training*". This fascination with computers began in 1989 when he started playing strip poker on a friend's computer, a Magna Vox 3.1. He later bought the computer from the friend and taught himself to use it for business productivity activities. The computer was then incorporated into the daily business activities replacing the existing manual typewriter. The introduction of the computer resulted in a significant decrease in the time it took for a customs entry form to be completed. Prior to using the computer, the entries would be completed manually by the Customs Clerks, given to the Secretary to be typed and then sent on to Jamaica Customs. This was time consuming and error prone. Another advantage of using the computer was the option to store data to be used as repeated information.

In 1990 Brokerage Ltd. partnered with a software engineer to develop an application to automate the process of completing custom entries. By 1991, there was a prototype of the application and Brokerage Ltd. began to use the program to complete their entries. On realizing that the Jamaica Customs Department was impressed with their efforts, the decision was taken by Brokerage Ltd. to develop the program further with a view to marketing it to other custom brokers. For financial purposes the owner of another customs broker firm was enlisted to achieve this goal. By 1992 the program had been adopted by other custom broker firms. The adoption was not widespread, since at that time only a few small businesses in Jamaica had computers. Despite the low adoption rate of the program by other brokers, the actions of Brokerage Ltd. caused the Jamaica Customs Department to take stock. According to the Director of Fiscal Services Limited, which is the IT solutions provider for the Government of Jamaica,: "*the Managing Director of Brokerage Ltd. was very instrumental in the development of the first customs EDI system*". In 1999 the Jamaica Customs Department rolled out their first EDI system to be used by customs brokers. The system known as Customs Automation Services (CASE) was rolled out to brokers, and in effect replaced the program created by Brokerage Ltd.

Brokerage Ltd. was also an early adopter of the Internet, the Managing Director opined: "*I adopted the Internet as soon as Cable and Wireless started offering the service. I was probably one of their first business customers. At that time I was using Windows 3.1 and the Internet connection was dial-up with 28.8 kbs*". Using ICT has greatly enhanced the services provided by Brokerage Ltd. and also assists the company to fulfil its guarantee of a quick turnaround time to its clients. This is important to the success of the business since most of its clients are corporate entities and services from Brokerage Ltd. ties into their inventory management systems. Also, increase in the efficiency of Brokerage Ltd. has resulted in cost reduction to their clients. This is so because un-cleared goods incur hefty charges, so the service offered by the broker is important. For an organisation of its size, the internal IT infrastructure of Brokerage Ltd. is sophisticated. Internet access has been upgraded to broadband. Senior members of staff are given remote access to the company's network. Brokerage Ltd. has also acquired the Harmonized System from the World Customs Organisation at a cost of US$500,000. The company does not have in-house IT staff but outsources to a group of IT experts.

In 2003/2004 the Jamaica Customs Department upgraded CASE to operate on the Internet platform. The new version of CASE meant that custom brokers are able to connect directly to the system at the Customs Department and share all information electronically. This presented new opportunities for Brokerage Ltd. to innovate using ICT. The Managing Director hired some local software programmers, to whom "*a tidy sum was paid*", to create a program that he had conceptualized. The Admin Program, as it is called, is a web-based program that is directly connected to the Jamaica Customs system and it pulls data on Brokerage Ltd.' clients. Thus this enables Brokerage Ltd. to provide real-time as well as historical information to their clients about various transactions. The program also helps Brokerage Ltd. to keep track of its error rate, this is important because if the company's error rate goes above 5 percent it is removed from the Customs Fast Track system. This means that instead of its entries being processed within two hours, it would take two days. Realizing the benefits from using the Admin Program, Brokerage Ltd. has started to market the program to other customs brokers. The company introduced a tracking system via its website, where clients can log onto the system to check the status of their goods as it passes through the clearing process. Its clients welcome Brokerage Ltd.' innovativeness and positive attitude to ICT adoption and implementation. One client with whom the company has a fifteen-year relationship opined: "*value added was significantly enhanced when Brokerage Ltd. introduced computers, which at the time was a radical and expensive move*." Customer satisfaction is an important motivation for Brokerage Ltd. to use ICT but according to the Managing Director: "*I think I would have still adopted the technology whether or not my clients were able to make use of it. Fascination is what drives my adoption of technology. I want my business to be up to international standards but more importantly I want to always be five steps ahead of my competitors in every aspect of the work*". Brokerage Ltd. has demonstrated that the even though the adoption of ICT may not have been driven by information systems strategy, its implementation can lead to strategic use resulting in increased business value.

DISCUSSION

Evidently, the Owners/CEOs are the champions of the adoption and implementation of ICT in both case studies. With regards to Aromatherapy Ltd., the early history of ICT adoption and use in the company is evidence that the technology is perceived to be beneficial to daily processes and operations. The age of the company may have impacted the attitude towards ICT use, having started in 1996 when computer hardware and software were becoming more commonplace within organisations. The autonomy of the Owner/CEO over the ICT adoption process in the organisation cannot be overstated; he has total control of these activities. The adoption of the Internet by Aromatherapy Ltd. can be described as adventitious because it was inspired by activities pursued by the CEO that were unrelated to the company. The timing of the Internet adoption illuminates the fact that when the Internet was first implemented there were no clear objectives as to how it would benefit the company since at that juncture Aromatherapy Ltd. was targeting the local market in which the diffusion of the Internet was very low. The significance of the web became evident to the Aromatherapy after it developed its niche tourism market. Continued adoption of Internet technologies and engagement in e-commerce followed a more structured approach. In 1998 when Aromatherapy Ltd. decided to sell their products online, it had become clear that their target market had shifted from local to overseas. The logistics process associated with selling online proved to be intensive and arduous since the local external environment was not conducive to small firms engaging in e-commerce. Aromatherapy Ltd. underwent an extensive initiation phase during which it searched for non-local solutions to circumvent the barriers encountered locally. This led to the institution of partnerships with overseas based service providers to facilitate e-commerce. This raises the importance of the accessibility of the technology to potential adopters, and the means to support its adoption and implementation. Most SMEs in Aromatherapy Ltd.' position would probably have abandoned the decision to adopt when faced with these accessibility barriers but the CEO of the company is IT savvy and this made a difference.

In relation to Brokerage Ltd., it is evident from the first introduction of computers to the company that the driving force behind the adoption of ICT is the fascination of the Owner/Managing Director. This individual has autonomy over the process of adoption and often the innovation is acquired without a clear view of its utilisation or benefits to the organisation. For example, in 1989/90 when the Owner/Managing Director bought his friend's computer to use in the business, 90 percent of the daily activities of the company involved completing preformatted customs entry forms using a typewriter. This basically reflects the adoption process for the company regarding ICT. The Internet was adopted because it was a good idea to be connected but there was no clear business objective. Despite this seemingly unorthodox method of adoption, the implementation of ICT in Brokerage Ltd. has yielded interesting results. Brokerage Ltd. has been creative in its use of ICTs. The first instance of this was manifested in the collaboration with a free-lance software programmer to create an application that could be used to complete their customs entries. Not only did the application create a means for using the acquired computer in the daily operations of the company, but Brokerage Ltd. sought to market the application to other companies in their industry. Further, it is in order to conclude that this innovative behaviour of Brokerage Ltd. was partly responsible for the actions of Jamaica Customs Department to automate the process of receiving custom entries from brokers. Clearly the

Owner/Managing Director is the champion of the adoption process; his embracing attitude towards ICT means that there is a willingness to adopt new technologies and engage in more complex e-business activities. There isn't a concerted effort to develop organisational capabilities rather the Owner undertakes the responsibility of learning the technology and subsequently passes the knowledge onto other members of staff. This enthusiasm translates into the company being able to use Internet technologies innovatively in terms of the service it provides to clients. The structure and size of the organisation make it conducive for the Owner/Managing Director to impose his will towards ICT. The drive to be competitive motivates continued adoption and further engagement in e-business activities. Further, the drive to be ahead of competitors was a strong motivator for the adoption of Internet technologies by Brokerage Ltd. There is a general perception that adoption of Internet technologies will be useful to the organisation especially in fulfilling its obligation to clients.

CONCLUSION

According to Levy et al. (2011) SMEs rarely engage in information systems strategy (ISS) alignment and information systems strategy is often reactive. While ISS may not be developed by SMEs it does not negate the fact that small companies utilise information systems for strategic use, as evidenced by the case studies in this paper. In the first instance, it is seen where Aromatherapy Ltd.' adoption of the Internet, although unrelated to the business, resulted in a company that was struggling to find a foothold in its local target market successfully refocusing its target market to the niche tourism sector and eventually extending its global research by engaging in e-commerce. Hence the company changed its business model through strategic use of Internet technologies and partnerships with third party providers. In the second instance, Brokerage Ltd. was innovative in its approach to ICT adoption to the extent where its implementation of certain information systems influenced the approach of the Jamaica Customs Department but more importantly contributed to increased business value for the organisation itself.

This paper has described the journey of two small companies and their adoption of Internet technologies. The narratives confirm findings in extant literature regarding factors that affect ICT adoption by SMEs, such as the fact that the awareness and attitude of CEOs/Owners toward ICT greatly increases the likelihood that the technology will be adopted and implemented within the organisation, sometimes irrespective of any perception of clear direct benefits to the business. These cases highlight the contextual reality of SMEs in developing countries with regards to the business environment in which they operate, especially the lack of service providers and anecdotal support for their engagement in complex e-business activities. Thus sometimes the organisation has be creative in its methods of adoption and think outside the box in implementing Internet technologies, more specifically engaging in e-business. Most importantly, the cases illustrate that though SMEs initial adoption of information systems may be opportunistic, it can then segue into strategic use by the company.

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