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Critical Factors for Electronic Commerce Success in Small Business: A Meta Study

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ABSTRACT

Small to medium-sized enterprises (SMEs) contribute significantly to the national economies and to the employment levels of different countries and represent a viable source for inventions and innovations. The recent emergence of electronic commerce in the early nineties could provide different opportunities to the small business sector to overcome its inadequacies. However, in view of the electronic commerce/business (EC) literature in organisations in general and in SMEs specifically, it was observed that EC research is scarce. Therefore, this research attempts, by reviewing relevant EC literature, to develop deeper understanding about the factors influencing EC success in SMEs. The researcher found the following issues significantly influence EC success in SMEs: e-Value, e-Cost, e-Transformation, e-Product, e-Nvolvement, e-Nnovativeness, e-Competition, external e-Support, and e-Pressure. These factors are of importance to researchers, SMEs, professionals including educational institutions and policymakers in driving SMEs and EC forward.

INTRODUCTION

It was not until the 1970's that researchers started to emphasise the importance of small to medium sized enterprises (SMEs) in maintaining healthy and dynamic economies within industrialised nations and in introducing inventions and innovations (Cameron & Massey, 1999; Iacovou, Benbasat & Dexter, 1995). Generally, SMEs constitute around 95 percent of enterprises and account for 60 to 70 percent of employment within the countries of the Organisation for Economic Cooperation and Development (OECD, 1997). New Zealand SMEs form a significant component of the economy output (35%) in terms of the number of firms (96%) and number of employees (41%) (MOED, 2000a).

The recent emergence of the Internet in general and the World Wide Web (WWW or Web) in particular has revolutionised business activities (Abell & Lim, 1996). The open standards of the Internet bring EC within the reach of the smallest of firms and help reduce the gap between large and small firms (Kalakota & Whinston, 1996; MOC, 1998). They are becoming more and more essential tools for organisations in general, and for SMEs businesses in particular, in gaining competitive advantage and in accessing global markets (Poon & Swatman, 1995).

At the outset, despite the apparent media hype (c.f. Premkumar & Roberts, 1999), and the enthusiasm among academicians (c.f. Adam& Deans, 2000; Abell & Lim, 1996; Infotech Weekly, 1997; Poon & Swatman, 1999a) and professionals (c.f. Deloitte, 2000; IDC, 1998; PWHC, 1999) about EC, there is, however, little published research about EC in general (Abell & Lim, 1996; Riggins & Rhee, 1998; Turban, Lee, King & Chung, 2000).

In a recent study, it was found that seventy three percent of surveyed small businesses are connected to the Internet; however, the potential use of the Internet in business was rarely explored (Waikato, 1999). Findings from a survey study indicate a lack of knowledge among New Zealand SMEs about EC and its applications. Despite the high adoption rates of e-mail, domain names, and web sites, New Zealand businesses are lagging other countries in the use of EC in business and in the adoption of EC-technology in general (Deloitte, 2000).

The above studies along with another study by PWHC (1999) portray a gloomy picture about EC uptake and use by New Zealand SMEs.

In line with the above discussion about the scarcity of the EC research and the laggardness of the SMEs with EC, this research attempts to unveil different factors influencing EC success in small business. By reviewing relevant literature about EC, it is expected to develop factors that would assist SMEs in resolving many ambiguities surrounding the new EC field. Thus, an attempt is made to bridge the existing gap between SMEs and EC.

ELECTRONIC COMMERCE AND SMALL BUSINESS

In reviewing the EC literature, the researcher found the following issues significantly influence EC success in SMEs: e-Value, e-Cost, e-Transformation, e-Product, e-Nvolvement, e-Nnovativeness, e-Competition, external e-Support, and e-Pressure.

e-Value

Different research studies highlighted the advantages to SMEs of using EC (Abell & Black, 1997; Abell & Lim, 1996; Adam & Deans, 2000; Deloitte, 2000; PWHC, 1999):

a- The Internet is an efficient communication medium
b- The Internet provides added value services to customers/partners/suppliers.
c- The Internet would provide new opportunities, otherwise not possible before the introduction of the Internet.
d- SMEs would adopt EC for image-enhancement purposes as well (e.g., having an Internet account and email address on business cards and letters).

On the other hand, the main impediments are:

a- Technological impediments, e.g., security, legalities, standards, telecommunication services.
b- Organisational impediments: cost, size, lack of knowledge/expertise about EC.
c- Environmental impediments: Relating to the lack of the regulatory frameworks pertinent to the above technological impediments highlighted in (a) above either at the country level or even at the global level.

Poon and Swatman (1998) emphasised other impediments:

a- SMEs are not inclined to use online sales and transactions due to the lack of transaction services on the Internet (e.g., cyber banking services were: not yet fully established, advertised and encouraged, and unsafe). However, SMEs traditional business culture proved to be more dominating than transacting and selling over the cyberspace.
b- Delivering products over the cyberspace is reliant on the digitiseability of such products. On the other hand, the business culture

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pertaining to its customer/suppliers would influence the use of such a facility even if it were possible. The loss of the interpersonal interactions on the Internet will also deter SMEs and suppliers/buyers from transacting over the Internet (Ba et al., 1999).

c- The enforceability of contracts (as opposed to originally signed contracts) over the Internet does not exist and fear of exposing the confidentiality of customer/buyers would only contribute to the partial use of the Internet by SMEs. The lack of security and legal protection on the Internet will deter customers/suppliers as well as SMEs from transacting over the Internet.

Mis-Perceptions or Misconceptions

Poon and Swatman (1998, 1999a) found most of the SMEs did not anticipate real benefits (direct sales and tangible profits) in the short run due to difficulties in selling products over the Internet (c.f. Adam & Deans, 2000), which required face-to-face interactions (c.f. Poon & Swatman, 1997). They found the key motives for SMEs to adopt EC are the long-term indirect benefits, e.g., ongoing business transformation and new business initiatives (new opportunities), which could resemble a preparatory stage (infrastructure) for the long run direct benefits stage (Secure returning customers and long term business partnership). However, there was unanimous agreement about email use for business communication.

e-Cost

Despite the advent of economical personal computers (Cragg & King, 1993; Poon, 1999; Naylor & Williams, 1994), most of the research which examines this feature pertaining to SMEs found that scarce financial resources are one of the main inhibitors to IS and EC adoption (Blili & Raymond, 1993; Behrendorff & Rahman, 1999; Burgess, 1998; MOED, 2000b; Poon, 1999; Poon & Swatman, 1995; Poon & Swatman, 1999a; Soh, Yap & Raman, 1992 Thong, 1999) including New Zealand SMEs (Cragg & King, 1992, 1993; Peters & Paynter, 1999).

On the other hand, having EC requires an apparent investment in different areas: technological infrastructure upgrades or replacement, EC integration with existing systems, EC consultants, investments in bandwidth and applications (Web site, Intranet, Extranet, etc). However, this considerable investment in the EC infrastructure is necessary to make it possible to process information efficiently, handle heavy traffic, and deliver satisfactory performance (Ba et al., 1999). SMEs would perceive this to be an expensive endeavour (MOED, 2000b; PWHC, 1999).

On the other hand, most probably the investment in EC would materialise in the long term only as highlighted earlier (c.f. Poon & Swatman's, 1998, 1999). However, this depends on different factors, amongst them the ability to develop economies of scale (Ba et al., 1999; Poon, 2000), e.g., having a well-established online customer base and ongoing business that enables the firm to sell massively and cheaply at the same time. It should be noted that SMEs could achieve cost savings in marketing their business over cyberspace as a cheaper means than the regular physical channels (Ba et al., 1999), which require a considerable regular investment (e.g., catalogues, TV ad's, etc.).

Poon and Swatman (1998) found SMEs willing to continue adopting the Internet despite the lack of tangible benefits and viewing the technology as a necessity for business, like the fax and telephone. However, how far this assertion applies to a considerable investment in EC infrastructure and whether the business would be able to sustain that investment for a long time is highly questionable. Poon and Swatman (1999b) found that most of the SMEs did not even experience savings in communication costs (e.g., ISP, hardware, software).

e-Transformation

Behrendorff and Rahman (1999) found fear of technology and management resistance to change hindering EC adoption and use within SMEs. With the introduction of new EC technology like the Intranet, Internet-EDI, Extranet, Web site, etc., there would be some fundamental changes in work processes and current practices (c.f. Alexander, 1999).

EC is not only a new way of selling and marketing, but also a new way of thinking which requires a change of mindset. Teo, Tan & Buk (1998) pointed to the fact that organisations attempting to adopt the Internet should expect a possible change in communication and culture patterns. The Internet provides rich and accessible information to organisations and this could result in removing the existing segmented walls of knowledge in organisations. The new pattern of communication may disturb the internal power structure and culture of the existing firms. Teo et al. (1998) found the compatibility factor significant to Internet adoption and this significance however, was apparent across the different adopters. Advanced adopters of the Internet (e.g., Web site) perceived the Internet as compatible with their organisational beliefs, value, and IT infrastructure. The result indicated the importance of the fit between the innovation and the organisation.

Issues pertaining to the technology itself may lead to a loss of confidentiality and to the leakage of SMEs vital information to hackers, snoopers, etc. In light of a non-existing regulatory framework, this will deter many SMEs from going to EC. If the SMEs perceive their employees will misuse the Internet, this may create lots of incompatibilities within SMEs and hence may raise barriers to EC adoption. On the other hand, small business face the two-sided problem of asymmetric information, where in the marketplace customers meet buyers and develop basic trust through eye contact, bargaining, shaking hands, etc, but this kind of interpersonal interaction does not exist on the Internet (Ba et al., 1999).

e-Product

EC is changing the way business is conducted even with individual customers. Firms that are able to streamline their products or processes or delivery agent on the Internet will be able to shift entirely to the pure EC arena (Choi, et al., 1997). The success stories of small business using the Internet are quite apparent and are publicised and reported by the media.

Most of the businesses existing on the Internet are not necessarily transacting information-based products only, but rather complement the sale and/or the delivery of a physical product with such things as publishing information about the usability of a physical product (e.g., user manuals), tracking the shipment, etc (Teo et al., 1998). Product characteristics appeared to have an effect on EC adoption being physical or digital (e.g., software download), where Poon and Swatman (1997) indicated that there are other activities, which could be implemented over the Internet to supplement the physical delivery of products. For instance the Internet could be used to transact information pertaining to delivery or acquisition of physical products. Thus, using the Internet to transact products is dependent on how efficient and effective the Internet is in coordinating transactions between senders and receivers of the product or the service (Poon & Swatman, 1998). Characteristics include: (1) the physical or information component, usability in electronic form (e.g., music, video), gain in effectiveness, and efficiency during the transaction process; (2) value added during the transaction process (e.g., freeware); and (3) customer preference between different forms of the same product and the related transaction process.

The Manager

Most of the IS literature in SMEs (Blili & Raymond, 1993; Cragg & King, 1992, 1993; Harrison et al., 1997; Jarvenpaa & Ives, 1991; Thong, 1999; Thong & Yap, 1995, 1996) and EC in SMEs (Poon & Swatman, 1998, 1997, 1999a, 1999b) emphasises the role and the characteristics of the manager-owner as a product champion. Poon and Swatman (1998) highlighted the importance of the following two main determinants on EC success in small business:

i. Management involvement: most of their respondents were either owners or managers who have direct involvement in adopting the Internet and using it for business; and

ii. The entrepreneurial perspective: Poon and Swatman observed the entrepreneurship characteristics among their Internet-active users, are always searching for change, responding to it, and exploiting it as an opportunity, ability to create, innovate, bear risk, manage and achieve targets.

e-Nvolvement

Poon and Swatman (1998, 1999a) point to the manager's role in their EC study, where they found direct management involvement was the norm in the different cases. Although the managers of small business lack formal IT qualifications and training they were champions in adopting EC specifically in micro businesses, where the sole decision-maker was the director of the business. Poon and Swatman emphasised the importance of the manager's involvement as being vital to EC success. Peters and Paynter (1999) however point to the lack of senior management involvement with computerisation and to the low positioning of the IT function in the firm which further highlights the importance of the manager's involvement perspective on EC success. The lack of top management commitment – sometimes through lack of understanding, lack of awareness and briefing is the biggest obstacle everywhere including New Zealand (WEB, 2001b). Further, due the multi-perspectives that characterises EC, which requires the collaboration of different departments within the organisation (e.g., IT, marketing, management), top management involvement and ownership is essential to overcome any political frictions that may arise in the introduction of EC.

e-Nnovativeness

In adopting a closer stance to the IS literature Thong (1999) and Thong and Yap (1995, 1996) considered the following measures for the CEO's innovativeness (based on Kirton's (1976) theory of innovativeness): introducing new original ideas, always looking for something new rather than improving something existing, and risk taker. Such features are at the heart of the entrepreneurial literature, in emphasising features pertaining to entrepreneurship and to entrepreneurs. Poon and Swatman (1997, 1998, 1999a) found that the entrepreneurial perspective differed between the different firms in their study. Managers/owners embraced EC technology and attempted to exploit it to the maximum. The managers who championed Internet adoption in their organisations demonstrated an innovative and a risk-taking attitude towards EC despite lacking formal IT training.

e-Competition

Two main issues are reported for the elements of competition in EC: Firstly, Adam and Deans (2000) in their Australian/New Zealand study found that only the SMEs which operated with overseas businesses perceived the greatest benefits from adopting EC. Poon and Swatman (1998) pointed to the market scope of small business, where SMEs transacting with international markets would perceive many advantages from the Internet, such as cost savings and market communication in comparison with other SMEs operating in local markets. Teo et al. (1998) showed that SMEs planning to expand their business globally would face high set-up costs and high levels of risk. The Internet, on the other hand, would provide a relatively low-cost alternative for SMEs for advertising and for finding new partners and suppliers around the world.

Poon and Swatman (1998; 1999b) report that some SMEs reported having a competitive advantage on the Internet. This was only a perception and the SMEs failed to produce financial evidence endorsing the competitive advantage assertion. The SMEs did not maintain customer counts and comparison sales figures to show they performed better than their competitors, but indicated that their competitors were either not connected to the Internet or their own Web site was reporting higher hit counts on search result lists. The literature on small businesses suggested that the greater the perceived intensity of competition in the industry, the more likely EC would be adopted by SMEs (Poon, 2000; Poon & Swatman, 1999a; Teo et al., 1998), specifically if the innovation directly affects the competition (Premkumar & Roberts, 1999). Being an English speaking country, having international quality skills, and able to price competitively (WEB, 2001a), EC can prove to be a key business tool to New Zealand businesses.

e-Pressure

Pressure from buyers/suppliers could be divided into pressure from consumers and pressure from other businesses. SMEs in the consumer business (SMEs-to-consumers (S2C)), e.g., retailers, would establish Web sites to provide different products and services to their existing customers. At the same time, SMEs will anticipate reaching the masses existing on the Internet for the chance of increased sales and revenues. SMEs in selling-to or buying-from other businesses (SMEs-to-business (S2B) or business-to- SMEs (B2S) respectively), e.g., wholesale trader, manufacturer, etc., are usually encouraged (sometimes forced by larger businesses) to adopt EC to enhance the collaboration with other businesses. Such collaboration could result in having different EC activities such as sending purchase-orders, monitoring delivery status, price and inventory enquiries, and stock monitoring (Poon, 2000). The type of relationship between SMEs and businesses could be established on a continuous basis, where SMEs leverage their inter-organisational systems (IOS) and extend them to link with their buyers and/or suppliers for the purpose of automating large parts of the manual processes and transactions. Accordingly, the pressure from suppliers/buyers would influence the type of technology adopted as well.

Poon and Swatman (1999a) asserted that if a small business retained a high percentage of customers and competitors online, this would increase the chances of adopting EC.

External e-Support

External support refers to the availability of support for implementing and using the innovation (EC), where organisations are more willing to risk trying new technologies if they feel there is adequate vendor or third-party support for the technology (Premkumar & Roberts, 1999). SMEs will lack the availability of technical resources and IS expertise in-house.

Due to the expected growth in EC SMEs will be further encouraged to adopt EC (Mcdonagh & Prothero 2000). On the other hand, the field of EC is relatively new and the actual functioning and utilisation of EC-technologies are still unknown to most organisations (Teo et al., 1998) including SMEs. Therefore, it is expected that SMEs planning to adopt EC would seek assistance from consultants/vendors in the industry in different areas such as planning and strategy, training, development, and implementation (Deloitte, 2000). Consultants and technology vendors can add significant value to business planning by SMEs (Mcdonagh & Prothero 2000). Poon & Swatman (1995) found SMEs relied on external support for their EC initiatives. Thus, the availability of such external support is essential for SMEs and will further encourage them to adopt EC (c.f. Alexander, 1999).

On the other hand, Fichman and Kemerer (1993) point to the lack of unbiased information sources about the different innovations as provided by the different technology vendors. Technology vendors tend to aggressively promote their own products, which are sometimes "masked in new vocabularies that are explainable only by a self-selected cadre of experts". Thus, selecting a suitable innovation for the firm would be a very difficult task. On the other hand, the reported literature on small business points to the importance of technology vendors and consultants on IS success in small business (Gable, 1991; Soh et al., 1992; Thong, Yap & Raman, 1994).

DISCUSSION

Being a new technological innovation, EC would provide diverse opportunities to SMEs to enlarge their scope and market share. However, these advantages will not accrue if SMEs do not know about these advantages (and disadvantages) in the first place (c.f. Deloitte, 2000), which emphasises the importance of spreading the awareness of the

technology and e-business models among the SMEs community. On the other hand, knowing the real benefits that would accrue from having EC in the present and/or in the future is of importance to SMEs in order to plan their EC acquisition plans properly and not to waste valuable resources. This should be achieved in parallel with the understanding of the real impact of EC on their organisations (products "information-intensity" and processes "e-transformation") and on their business environment (competition and customers/suppliers).

Despite the existing optimism among the SMEs about EC, the lack of EC profitability in the short-term will further endanger many of the EC initiatives if they base their analysis on financial cost "return on investment" measures only. On the other hand, striking a balance between the investments made on EC and the value (either tangible or intangible) accruing from having EC will further judge the success or the failure of the different EC initiatives in SMEs. Thus, an initial investment in EC, e.g., a Web site, might be motivated by an image-enhancement criteria and might not develop any further to a strategic one. It is observed thus far that SMEs are still experimenting with the technology (adopting Internet, email accounts, and Web site presence only) and are still avoiding a considerable investment in the technology (c.f. Teo et al., 1998; Waikato, 1999). One possible explanation however, is that when greater convergence of technologies and critical mass and interdependence occurs, that New Zealand firms may use electronic commerce strategically (Peters & Paynter, 1999). However, more evidence is needed to have better insights into EC from the SMEs' perspective. Despite these impediments, recent EC literature reported wide enthusiasm for the technology and in pursuing new opportunities, which highlights seriousness in exploring the potential benefits of EC to small business.

EC seemed a logical extension to SMEs operating within international markets; having high information-content products; technology-based or Internet-related vendors (c.f. Poon & Swatman (1997, 1999, 1998) and Abell & Lim (1996)); driven to have EC by supplier/buyer/partner; and facing intense competition over the Internet. It is worth noting that the information-content of products has led to the emergence of new businesses (mostly SMEs) over the Internet. SMEs with excess resources (usually larger ones) are more able to experiment with the technology and to sustain it for a longer time.

Most of the literature in small business demonstrates the importance of the manager's role (usually the owner) in IS/EC success being the single point of authority and decision-making. The field of EC is relatively new and the actual functioning and utilisation of EC-technologies are still unknown to most organisations. Thus, highly emphasising the importance of the manager-owner innovativeness and involvement on EC success. This is necessary to guarantee EC adoption and diffusion and in providing resources, motivation, and transformation-empowerment.

SUMMARY

This research attempted to highlight the main issues that would accelerate or hinder the wide adoption and diffusion of EC in SMEs. These factors would prove useful to SMEs in their potential uptake and use of EC. Specifically, these points are addressed to the manager-owner of the SMEs in identifying the different perspectives surrounding the new innovation. Therefore, it is left to the managers of the SMEs to consider the importance of the above factors on their current and future plans in adopting and/or using EC. This is the subject of the next phase of the research in implementing a large survey research to validate/refute the importance of the different factors and to identify features pertaining to the small sector in New Zealand specifically. The issues raised by this research are of importance to researchers working in the same field, policymakers interested in devising means and measures to encourage the small sector in embracing EC, and to professionals including vendors, consultants and education institutions in targeting the small sector.

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