THE IMPACT OF E-COMMERCE ON SMALL AND MEDIUM SIZED ENTERPRISES(SME) IN AUSTRALIA

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ABSTRACT

E-commerce can be called as one of the most innovative and revolutionary developments of the technological era. Its strong explosion has encouraged a new phase in global communication and trade and Australia is a strong player. A questionnaire survey was conducted to study the impact of e-commerce on small and medium sized enterprises (SME) in Australia. From the results of the survey, there is a clear indication that Australian SMEs are ready to embrace the new technologies to support e-commerce and most of them have already applied it in their business system. Although the intensity of using e-commerce technology is still somewhat lagging behind key players in some European, Asian countries and USA, there is a rapid growth of e-commerce in Australia. All the respondents believe that e-commerce really brings a lot of benefits to their business.

Keywords: *e-commerce, enterprise, technology, benefit*

INTRODUCTION

Over the past two decades, business in virtually every sector of the world economy have benefited from the technologies of electronic commerce. However, the interest in e-commerce is relatively recent. Hence, any definition of e-commerce is not included under the rubric of e-commerce is bound to be controversial and is still evolving.

Commercially, e-commerce can be referred as activities that seek to create arm's length transactions between firms and individuals, also it involves in the exchange of money, goods or duties. Therefore e-commerce definition excludes inter-organisational systems such as email, telephone, fax or internet telephone, as well as internal computing accomplished by accounting, sales, inventory, treasure, personnel or executive information systems.

Commercial transactions can occur from business to business, for example in electronic data interchange, auction markets and distribution logistics systems. This can also take place from business to consumers, for example in world wide web(WWW) retailing and electronic brokerages. The use of Internet and e-business activities have generated considerable interest in Australia. Australia is one of the first countries to embrace e-commerce technology with the support of Australian government,

which has tailored their economic policies to increase economic development by supporting the promotion of e-business. E-commerce will provide new opportunities to expand exports and enhance economic growth (Department of Foreign Affairs and Trade, 1997). A priority of Australian government is to encourage the use of business-to-business e-commerce as the government believes that e-commerce offers considerable competitive advantage to the industry (Alston, 1999). SMEs constitute 94-96 percent of commercial organizations in Australia (ABS, 1998) and therefore play a major role in the Australian economy by contributing to private sector employment. The implementation of e-business activities in SMEs raises many issues. This new way of doing business requires staff with expertise in new technologies and SMEs will not necessarily have dedicated IT staff to enable them to gain the necessary competitive advantage (Lawson et. al, 2003). Unlike large organizations, who may have specialised IT staff, SMEs may have difficulties first in meeting the initial costs and then the on-going expenses of maintaining the operation (Farmer, 1996). Small organizations will not take up new technologies unless they perceive an advantage to do so, or an immediate disadvantage in not taking them up (Clarke, 1997). The alleged popularity of e-commerce is due to a multitude of perceived operational benefits it can bring to purchasing practices (Wagner et. Al, 2002). Examples of these benefits are cost savings resulting from speedy transmission of purchase order-related information; and enhanced opportunities for the supplier-buyer partnership through establishment of a web of business-to- business communication networks. (Dell, 1999). E-commerce can increase supply chain efficiency by providing real-time information regarding product availability, inventory level, shipment status, and production requirements (Radstaak and Ketelaar, 1998). Furthermore, it can effectively link customer demand information to upstream supply chain functions and subsequently facilitate "pull" (demand-driven) supply chain operations (Kalakota and Whinston, 1997). Despite such potential benefits, most of the firms are not keen to embrace e-commerce as a purchasing tool (Pawar and Driva, 2000). Some major hurdles to successful implementation of e-commerce include a host of security, legal and financial problems, not the least of which are unquantified business cases for its introduction (Taylor, 1999). Current e-commerce systems do not fully address these issues, and most concentrate on bilaterial relationship between buyers and sellers (van Hoek, 2001). Australian SMEs are using e-business for various purposes and the use of e-

business has increased substantially over the last few years. It is therefore important to analyse and examine the impact of e-commerce on SMEs in Australia as there is a dearth of research in the above area.

The purpose of the research therefore is:

· to explore the extent of e-commerce implementation in SMEs, expected benefits and apparent obstacles to e-commerce

· to investigate how the use of e-commerce assist the business functions of SMEs.

· to determine the impact of e-commerce implementation in business performance

METHODOLOGY

It was decided to use a survey research method because the aim was to obtain wide geographical and industrial coverage. Furthermore, e-commerce application in operations is an emerging area of research and exploratory survey research would be appropriate for such a study (Forza, 2002). After a thorough review of the literature, a questionnaire was designed. The questionnaire for the survey is divided into three sections. The first section consists questions about demographic information of the companies, such as the number of employees, the location of the suppliers and customers and the industry sector to which the company belongs. The next section is to discover how internet technology can benefit the company; it includes the use of Internet and company websites, as well as its effectiveness and how the company performs by using this technology. The last section is to gain understanding of how the company receives advice about this technology and what kind of experiences toward the use of e-commerce technology, such as the barriers and the benefits of e-commerce.

SAMPLING

As the survey was commissioned to investigate use of e-commerce by SMEs, business with more than 250 employees were excluded. Also the companies with employees less than 9 people were removed from the sample as it was presumed that a company with less than 9 people would not have a well-developed e-commerce application. In this study, only small company, which consists of 9-20 employees, and medium sized company with 21-250 employees are included in the sample. A random

sample of 1100 companies across Australia is used. The company list was gathered by using white pages website, www. whitepages.com.au and another website www.ozebiz.com.au. The questionnaire was sent by email to IT managers or their equivalent. The questionnaire survey was designed to collect quantitative data on the issues examined. In addition, some qualitative data in the form of comments from respondents to the survey has been used in the analysis. These comments have been selected as being of particular interest or providing additional insight and should not be taken as representative of all respondents.

ANALYSIS OF RESULTS

Completed responses were obtained from 47 companies (effective response rate of 4.3%). Of them there are twenty seven from small sized companies and twenty from medium sized companies.

Readiness

The readiness indicators evaluate the potential to access and develop information and communication technologies (ICTs). These indicators include appropriate skills, expected benefits and apparent obstacles to e-commerce. Therefore this section focuses on access to ICTs, skills, perceived benefits and barriers to e-commerce, also planning and advices, and considers the following indicators:

- The method of connection to internet

- e-commerce implementation

- expected benefits of e-commerce

- barriers to e-commerce

- development of an e-commerce strategy

- e-commerce advice take up

Internet connection type

Companies have several method of connecting to the internet available to them and may use more than one (Table 1). The majority (36.2%) of respondents indicated they connect via an ADSL modem. The second most widespread connection type is Cable at 31.9%, followed by Dial Up modem user at 29.8%. Twenty eight percent have a fixed line connection. Eleven percent of respondents stated that they use wireless connection in their company. The use of satellite connection technology by Australian SMEs is pretty low, at just 4% overall.

The result shows that there are significant differences in quality of internet access between firms of different size, industry sectors and regions. Cable modem access is the most common connection method among Australian medium sized companies (45%) medium sized companies continue to show a greater use of ADSL and technologies such as wireless and satellite , although the latter connections are relatively low. It can also be seen that some medium sized companies are still using dial up modem (20%) for the internet connection. Table 1 shows that small companies are not left behind in using newest Internet connection technology; the majority of small businesses are using ADSL at 37%, dial up (33%) is also still the major connection type used by small firms. The probability of using fixed line by Australian SMEs in this analysis can not be used as a reference because the only explanation of this result is probably the respondents need a fixed connection because the companies need a steady internet connection to send large data across the countries all the time. It is also not surprising to see a lot of companies use broadband, since the price of this connection is almost the same as dial up but broadband offers a faster transfer rate. The table also shows that no companies use ISDN connection.

TABLE 1 Internet Connection Type by Companies

Connection Type	Small company(%)	Medium sized company(%)
Dial up	33	20
ADSL	37	30
Cable	26	45
satellite	0	5
Wireless	11	15
Fixed Line	30	30

Planning e-commerce implementation

Adapting e-commerce within a business should be an integral part of a company's overall strategy. Planning is essential to exploit the potential opportunities and benefits. Respondents were asked whether they have an e-commerce plan. The majority indicated they do not have a strategy of e-commerce. However, medium sized firms are more likely to have developed or at least developing an e-commerce plan than small sized businesses.

Expected benefits from e-commerce

Respondents were asked to indicate which benefits they have experienced from their use of e-commerce. The top five of experienced benefits for all respondents were "more efficient operations", "reduce cost", " increased customers", "more efficient marketing" and "new business opportunities".

The top three of experienced benefits for small sized companies were "more efficient operations", "reduce cost", and "new business opportunities". However medium sized enterprises indicated slightly different experiences, namely "reduce cost", "increase customer" and more efficient marketing. Table illustrates the experienced benefits of e-commerce by company size.

TABLE 2 Experienced benefits of E-commerce by Company Size

	Small (%)	Medium(%)9
Increase customer	33	20
More efficient marketing	29	20
New business opportunities	33	15
International trade	14.5	10
Increase turnover	25	14.8
Increase profit	29	14.6
Reduce cost	36	24
More efficient operations	40	4.9

Respondents were also asked to specify which benefits they expect to experience from the use of e-commerce technologies. Top five of expected benefits for small sized firms in using e-commerce were "increase turnover", "increase customers", "increase profits", "more efficient marketing" and "international trade". Medium sized businesses have different expectations than small firms, their expectations were "new business opportunities", "international trade", "increase profit" and "increase turnover". These expectations are merely the same within medium sized businesses as can be seen from Table 3.

TABLE 3 Expected Benefits of E-commerce by Company Size

	Small (%)	Medium(%)
Increase customer	22	10
More efficient marketing	18	10
New business opportunities	10.5	19.5
International trade	18	19.5
Increase turnover	29	19.5
Increase profit	22	19
Reducke cost	3	10
More efficient operations		15

Survey results indicated that although Australian SMEs are experiencing benefits of using e-commerce, there is a gap within expected and experienced benefits.

Barriers to E-commerce

Respondents were asked which factors represent barriers to e-commerce. The key barriers for all SMEs in Australia are "not enough skilled staff", "legal issues" and "security reasons" (Table 4). A lack of skilled staff is the most significant barrier for almost 45% of all respondents, regardless small or medium sized companies, and has been shown to be the major problem in Australia. Although Australia has a lot of resources of skilled persons in this field, however small companies may feel this staff is not suitable for their company, since small firms usually do not employ an employee that is only experienced in one area only, they like to employ somebody who can cover several areas.

A lack of understanding of legal issues involved in implementing e-commerce is a significant barrier for Australian SMEs. Implementing e-commerce within a business requires strategic knowledge in legal issues, including tax and regulation, as well as understanding of the technology available. SMEs need to be able to identify and understand which area of their business will benefit the most from the introduction of e-commerce. Survey respondents indicated a general lack of understanding of legal issues in e-commerce is and exactly how it might be applied to their particular business.

The results also suggest that many SMEs are influenced by a very narrow and limiting view of e-commerce, like it is simply selling over the internet. As a result of this, Australian SMEs may be ignoring other important benefits e-commerce offers in managing and developing supply chain. All business, regardless size or sector, have the potential to introduce e-commerce into their business, for example the use of value chain with suppliers and other trading partners for product/service design and development of procurement services.

TABLE 4 Barriers to E-commerce

Barriers	% of SMEs
High cost	12.5
Do not understand	11
Not enough skilled staff	45
No internal IT system	12
Internet connection is not dependable	17
Insufficient return on investment	6
Type of products/services not suitable	21
Customers/partners not ready	23
Security	42
Legal issues	45

Lack of skilled staff and security reason are the main barriers for SMEs of all size. Although those barriers mentioned previously were the same for both type of companies, small sized companies and medium sized firms had a different view of other barriers. Small sized businesses feel that "type of product is not dependable" and "legal issues" are also their biggest problems. However medium sized companies think that "internet connection is not dependable" and "customers/partners not ready".

Intensity

The overall coverage of e-commerce in Australian SMEs and the availability of e-commerce tools have been assessed previously. This section will discuss how SMEs are using e-commerce to assist their business functions, especially websites and e-mail. Almost all businesses in the survey have a website to support their businesses. The larger SMEs are more likely to have a website. 95% of the medium sized companies have a website and a large portion of small sized companies has a website as well. Although the website may be very simple for some of the small companies, but it proves that by having a website can still help to promote their business. About 25% of Australian SMEs analyze the pages viewed by visitors. Only sixteen percent of small sized firms and approximately 24% of medium sized enterprises accept payment from customers online. 19% of the respondents claimed to make sales using the internet. Forty two percent of medium sized firm respondents advised that they make payments online. Also about 35% of small sized companies believed to make payment online. It indicates that the larger companies are more likely to make online payments. Australia was ranked third to make online payments if compared with some European countries such as Germany, UK, Italy and France. The most popular e-commerce technologies used by respondents are e-mail and websites. Around 27% of Australian SMEs are using e-commerce technologies to buy products or services. 8.5% of small and medium sized enterprises used e-commerce to sell.

Respondents were asked to choose which e-commerce tools they use to carry out a series of sales and marketing activities. From the results, it is quite clear that medium sized companies use e-commerce technology more than small companies, but telephone is still playing a vital role in conducting the business of all sizes. The survey responses show that medium sized companies are not only carrying out sales and marketing functions with their customers, but are also more likely to use e-commerce.

Impact

E-commerce impact focuses on the effect SMEs experience on their businesses through implementing e-commerce, including the effects on business performance and the perceived benefits that they achieve. Impacts can be tangible and intangible.

Domestic and overseas customers

A total of 80% of the respondents believed that they have won domestic customers by using the Internet; in most cases they represent more than 75 percent of their total customer case. As regards overseas customers, 12% of the respondents indicated that Internet helps them to win about 25% of their customer base from overseas and 10% of the respondents believed that the Internet can really assist to attract new customers by up to 50% of their customers basis. As for future plans of e-commerce, about 20 percent of small and medium sized firms wished to expand e-commerce within the next 12 months. Smaller companies tend to decide not to plan to expand their use of e-commerce in this time frame. SMEs which have implemented some form of e-commerce technology with their trading partners are more likely to increase their implementation of e-commerce technology in the next 12 months. For those SMEs who still rely on phone and fax to conduct their businesses are less likely to be planning to expand or introduce any e-commerce implementations.

Benefits experienced

Most of the SMEs indicate that they have a more efficient operation. Table 5 gives a summary of the results.

TABLE 5 Benefits Experienced through E-commerce Implementation

Benefits experienced through e-commerce	Small (%)	Medium (%)
Increased customers	33.3	20
More efficient marketing	29.6	20
New business opportunities	37	15
International trade	18.5	10
Increased turnvoer	25.9	10
Increased profit	29.6	15
Reduce cost	40.7	25
More efficient operations	44.4	10

CONCLUSION

The main objective of this paper is to anlayze and investigate the impact of e-commerce on small and medium sized enterprises in Australia. The study indicates that Australian medium sized companies have embraced the e-commerce technology, however further works need to be done to encourage small firms to use ICTs and e-commerce.

Cheaper cost of using broadband in Australia has helped the small companies to transfer from the outdated dial up connection to a faster access which is broadband. The top five of experienced benefits for all respondents were "more efficient operations", "reduce costs", "increase customers", "more efficient marketing" and "new business opportunities". Key barriers to e-commerce for all SMEs are lack of skilled staff and understanding in legal and security issues.

Results suggest that Australian SMEs are still behind the key players like USA, some European and Asian countries. However Australia is trying hard to compete with those countries. Survey result indicated that more than 85% of respondents have a company website. SMEs are using e-commerce to reach new customers both domestic and overseas. The professional services sector is experiencing the greatest impact of implementing e-commerce. 80% of the respondents believe that they have won domestic customers by using the internet. A small percentage (about 10%) of the SMEs believe that they have won upto 50% of their customer base from overseas using the internet. Only 20% of the respondents are willing to expand their e-commerce activities within the next 12 months. Most SMEs believe that e-commerce will reduce cost and enable them to operate efficiently.

One of the limitations of the study is that the authors did not receive a large response due to a variety of reasons. The authors believe that by collaborating with a government body such as Australian Bureau of Statistics or Department of Trade would increase the response rate from the targeted companies. The next stage of the research will be to use the results of the study to design a more comprehensive questionnaire and target a larger sample of SMEs.

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