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## Increasing the Adoption of Electronic Commerce by SMEs: Reflections from an Empirical Study

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### Abstract

*This paper examines the perceptions of SMEs, local business associations and government workers in four regions of Western Australia regarding the adoption of electronic commerce. It first discusses the drivers and barriers that affect SME participation in e-commerce as identified by the literature, before offering an alternative to the notion of SMEs as a homogenous group. The authors reflect on the concerns raised in a recent empirical study and offer some conclusions and recommendations.*

### Keywords

SMEs, e-commerce adoption, motivations, drivers and barriers

### INTRODUCTION

Broad opportunities for SMEs to participate in electronic commerce began with the widespread availability of personal computers (Cragg & King, 1993; Poon & Swatman, 1999) and the reduction in IT costs. The Internet, as a business tool, has enhanced the use of e-commerce for companies of every size, contributing many benefits, but also causing an information overload for many and a sense of disorientation as the business landscape rapidly changes beyond recognition. The dynamism of the electronic environment is intimidating to many and yet the calls for more participation in e-commerce come from all sectors. These calls have extended into the procurement sector where the development of e-marketplace is affecting traditional supply chains and opening up new markets.

While the electronic environment offers Australian SMEs many new opportunities to trade overseas and broaden their markets, it also places Australian markets within the reach of overseas firms searching for new trading partners. This presents a real threat to local firms that cannot compete in the same environment. Therefore some importance exists in developing strategies for more carefully targeting of programmes to SMEs that are likely to adopt e-commerce down through their value chain. Such targeted programmes also have the potential to maintain diversity in local supplier bases thereby contributing to the supply chains of large organisations in the region.

Smaller companies require information and support if they are to benefit from the many aspects of e-commerce and, although there are many sources of help available, take up of e-business is slow. This is particularly true in rural and regional areas and while identified barriers indicate some reasons for this, there remain many questions as to how participation can be increased. In a recent study on SME participation in electronic marketplaces (Standing & Stockdale, 2003) we examined and discussed drivers and barriers with a range of people from local business associations, local and state government offices, and small and medium size businesses. We have used the inputs from these different sources to reflect on ways to support and encourage more widespread participation in electronic commerce by SMEs. The purpose of this paper is therefore to raise the concerns posed to us during our study to a broader academic audience and to offer some reflections on how these concerns might be addressed. Although the study dealt primarily with electronic marketplace participation, the concerns discussed are applicable to a broader e-commerce perspective and we have therefore related the paper to the wider electronic context.

In this paper, we first discuss the drivers and barriers that affect SME participation in e-commerce as identified by the literature. We then examine the motivations of SMEs in moving towards e-commerce adoption and challenge the notion of SMEs as a homogenous group, by identifying differing perceptions of e-commerce that influence adoption levels. Finally we reflect on the concerns raised by SMEs in our recent study and offer some conclusions and recommendations.

### E-commerce drivers and barriers

There are many factors that support or inhibit a company's decision to participate in any level of e-commerce. Drivers and barriers have been identified from the literature, and are examined to provide a broad context for the discussion on increasing adoption rates of e-commerce by SMEs.

#### Drivers

There are four areas in which enthusiasm for the online environment may arise, either independently from each other or as a result of a combination of circumstances.

#### Owners and Management

An owner's enthusiasm for the technology has been identified as a major motivator in the adoption of e-commerce by an SME (Cragg & King, 1993). This can be extended to include senior management (DeLone, 1988; Poon & Swatman, 1999) in larger SMEs and enthusiastic employees or family members in the smaller or micro businesses. This enthusiasm may be the result of previous experience or training, but is as likely to be the result of personal experiences, contacts or anecdotal experiences of others. In essence, it is the computer literacy of the 'technology champion' that drives the initial move towards participation, which may begin with entry level technologies such as a Website or email, before familiarity encourages the moving to a higher level of adoption (DoIT, 2001). It is the ability of the innovator to motivate the employees within a company that will contribute to successful adoption.

#### Industry Sectors and Relationships

The industry sector within which a company operates may have a significant influence on its decision to participate in e-commerce activities. If the sector is well supported by Web literate customers or suppliers this will likely encourage a company to adopt a similar level of Web activity to maintain its relationships (Cragg & King, 1993). More recently there has been increasing evidence that Web-enabled suppliers and customers can pressurise companies to adopt new technologies. This is particularly evident in online procurement where larger organisations are refusing to negotiate with suppliers who do not participate in their online auctions. This is also more evident in the retail sector where customers increasingly expect to be able to communicate by email.

#### Realisation of Benefits

Promises of benefits that can be gained from e-commerce are extensive, but in reality many of these benefits do not accrue to the company in the short term, but are the result of long term participation. Where an SME has the vision to accept that benefits will be realisable in the long term, it may retain the motivation for participation, although in many cases adopters remain unsure of the benefits (Goode, 2002). However, in one study the realisation of long term indirect benefits was a main driver for going online (Poon & Swatman) although all the participants in this study reported gaining unexpected new opportunities from participation. A list of benefits that may accrue in the long term are summarised in Table 1.

<i>Benefit</i>	<i>Description</i>
Time benefits	enables better response times to customers/suppliers saves time and improves accuracy of bids, tenders and orders faster interoffice communication
Cost benefits	transaction costs lower purchasing costs, reduced inventory holdings, indirect costs (e.g. telephone, travel etc) support costs
Growth of markets	reduces distance related barriers and enables access to global markets increased sales
Information	improved flow of information between suppliers and/or customers more effective information gathering on customers to improve customer service more access to government and trade organisation data
Ongoing survival	in competition with new entrants to the market or because contracts depend on the ability of the firm to following a trading partner online
Improves ability to compete with	facilitates entry to larger companies' supply chains via electronic trading

larger organisations	
Cost effective way to market business/ Promotional channel	improves company image by adding legitimacy (i.e. up to date, technologically aware company) direct and indirect advertising storefronts in marketplaces
Access to new customers	easier access to new customers through databases etc
Improve communications	supports the increased need for greater customer interaction in age where customer service is a big selling point
Identify potential business partners	transparency of the online environment supports the identification of collaborative opportunities

Table 1: Possible long-term benefits of e-commerce

### External Factors

Globalization and the current economic climate have brought great changes to the business environment. Large organisations are increasingly outsourcing many of their requirements opening up the market to smaller, more flexible firms. With the help of e-commerce, these firms have the ability to respond more quickly to changing demands than their large counterparts enabling them to take advantage of outsourcing opportunities. The deregulation of many industries across the world has also opened up the market for companies that are able to respond to the changes and who have networking capabilities to facilitate partnerships across wide geographic areas. Changes in trading boundaries, such as the single European market, have had a major effect on the ability of SMEs to cross national boundaries and broaden their markets. This has motivated many European SMEs to adopt e-commerce technologies to enable them to build networks with other companies to exploit the wider market and fight off the challenge from overseas competition (Dutta & Evrard, 1999).

### Barriers

There are several barriers to participation that can either de-motivate companies or prevent them from adopting e-commerce despite the will to do so. One of the primary barriers is a lack of knowledge.

#### Lack of knowledge

A main difficulty in moving to the electronic environment for SMEs is simply a lack of knowledge. This is lack of knowledge of both the technology and of the benefits it can deliver to SMEs. As we have noted, one of the drivers to participation is the existence of a technology champion within the company. This indicates that knowledge is available to most people and therefore we should perhaps add fear of the new technology. Anecdotal evidence suggests that many people with no formal training in information technology are unwilling to undertake training if they cannot see a specific need. This is compounded by lack of advice and support from external sources and the somewhat poor reputation of IT consultants (Bode & Burn, 2001) who are seen as too expensive and unhelpful (van Akkeren & Cavaye, 1999). If there is a lack of skilled and qualified staff within a company the barrier to adoption becomes higher as the company then becomes dependent on external sources of help. Unless there is a forceful driver towards adoption, the company is unlikely to take any action. A report by Yellow Pages in 1998 recorded a lack of interest in e-commerce by 49% of SMEs surveyed (van Akkeren & Cavaye, 1999) and a subsequent study of second hand car firms in NSW showed very little perception of the business benefits that can accrue to a company that adopts e-commerce. However, a separate study in Wales found that 66% of non-participants were aware of possible benefits of participation in e-commerce (Lewis & Cockrill, 2002) indicating that industry sectors and national policies may have a strong role in the dissemination of knowledge.

#### Technology concerns

Even among those firms that have knowledge of the new technologies that enable e-commerce, there remain technology concerns. Some of these concern a mistrust of the IT industry that is perceived to be too fast moving and too changeable (van Akkeren & Cavaye, 1999). This compounds the largely negative view of technology consultants who are seen as too expensive and not very helpful. There is a belief that technology is moving too fast and therefore the company will not be able to keep up with it. This reflects the concern of a lack of real in-depth knowledge amongst SMEs particularly in rural areas where it is very difficult to attract and retain skilled IT staff.

A major technology concern for all companies is that of security and worries about fraud. SMEs have been slow to adopt software that offers at least some level of protection, such as virus checkers and firewalls (Ravendran, 2001), although it is not clear what combination of factors leads to this lack of protection. Factors may include cost, lack of expertise or lack of understanding of the nature of hackers and who they target.

A number of technology concerns could be addressed if the IT industry were to target SMEs more effectively. To date, the IT industry has focussed itself towards large multinational organisations and big companies that have the budgets to embrace a range of IT products and services. Technology providers are very important to the take up of IT and, with careful targeting, have the ability to encourage more companies to adopt the technology.

### **Lack of Resources**

A major barrier to e-commerce participation by SMEs remains a lack of resources (Cragg & King, 1993). Although the cost of Internet connection is falling and email is coming within the reach of most companies, for more extensive participation there remains a substantial investment cost. Hardware and software costs represent a significant investment for smaller companies and telecommunications costs remain high. In addition, there is a requirement for a substantial investment in time and training for employees to maintain a multi-skilled workforce. This can impose a severe strain on the limited financial and time resources of most SMEs. A further major barrier for small companies wishing to participate in electronic commerce is a lack of resources to effect the business transformation required. The lack of resources include:

- computer hardware
- IT skills
- the knowledge to reposition businesses to take advantage of the benefits available
- money

SMEs need support to become web enabled and they are more likely to accept that help if it is neutrally sponsored by government or association bodies (Anon., 2001).

### **Relationships**

While the industry sector and the maintenance of relationships may be a persuasive driver for some SMEs, in other cases it becomes a deterrent. The low take up by suppliers and customers may have a detrimental effect on a company's commitment to e-commerce (Lewis & Cockrill, 2002). For example, a company targeting a customer base that has little technological experience is unlikely to see the need to move to the electronic environment. In the same way, if the company cannot use e-commerce to interact with their suppliers they may delay adoption.

### **Size of the Company**

Small companies have fewer financial transactions and less need to integrate e-commerce with their internal systems. Therefore the requirement to achieve time savings and gain efficiency from integration and online financial transactions can be low. Small companies may also worry about frivolous use of the Internet amongst their employees (there is ample anecdotal evidence that use of the Internet for personal e-mails and web searches are widespread in larger companies).

Large firms have to recognise the increasing use of SMEs in their outsourcing and need to develop more approaches to SMEs to bring them into their extranets. Sharing expertise with smaller supporting companies can bring benefits to larger firms that seek to expand their supplier bases. In return for support in moving to the electronic environment, larger organisations can gain products and services from a range of smaller companies that are often more responsive to changes in demand and quicker to adapt to new requirements. For example, larger firms may provide software which, although it introduces switching costs, may smooth the path of the move to e-trading (Erbschloe, 1999).

### **Technological infrastructure**

The technological infrastructure required for e-commerce is extensive. It resembles the problems of the 19<sup>th</sup> century where to benefit from the railroads, companies required local access to railway lines and stations. The cost of building the necessary infrastructure to ensure universal coverage is very high and requires political will to drive the programme. In Australia the construction of a telecommunications infrastructure that is available to all is hampered by the vast distances involved and the high costs in connecting these distances. Telstra's submission to the Federal Government's Regional Telecommunications Inquiry in 2002 states that dial-up Internet access is now universally available for the cost of a local call in Australia and upgrades of the rural

telecommunications network have been promised (Alston, 2002). However, concerns amongst the rural population remain (ABC National Rural News, 2002). This perhaps relates to a long-standing problem that affects all businesses in e-commerce; the question of connectivity. Overburdened telecommunications networks can affect the speed and even ability to connect to the Internet, a problem that is significantly worse in rural areas (Swatman, 2000) where many SMEs are based.

The differences in connectivity and the perceived 'digital divide' that is growing between rural and metropolitan SMEs (Curtin, 2001, DoIT, 2001) will be exacerbated by the advances in the use of broadband. The advantages of broadband connectivity (the 'always on' higher speed access to the Internet) are already becoming evident with companies gaining greater benefits in cost savings, flexibility and 'substantial progress in comprehensive enablement' (Allen Consulting Group, 2002). The WA Government has commissioned a report on affordable broadband access within metropolitan area where universal access is not yet a reality. However, the likelihood of broadband being extended to rural areas in the foreseeable future appears slight.

An additional problem for national e-commerce is that universal access opens the boundaries to international competition. Where telecommunication infrastructures are in place in other countries, many businesses will be tempted to bypass the cheaper rural areas within their own national boundaries to seek cheaper business relationships abroad (Premkumar & Roberts, 1999). The developing world markets, brought about by e-commerce and the increased ability to trade globally facilitated by electronic markets, adds to pressure on the SMEs because there are more firms with the ability to trade in each region. This underscores the need for Australian SMEs to be active and competitive in the electronic environment.

## **THE STUDY**

Providing a context for the reflections discussed in this paper requires an explanation of the study on which it is based. The study was carried out over a six months period for the Rural Industries Research and Development Corporation and its purpose was to examine the electronic marketplace environment and how to extend accessibility to these marketplaces for regional and rural businesses in Western Australia. The research necessarily included input from urban areas to enable comparisons to be made. The study used a literature review to establish the issues that affected SMEs in Australia and to identify the recognised drivers and barriers of e-commerce, and the advantages and disadvantages of e-marketplaces for SMEs. The second stage of the study was the examination of case studies to illustrate both the e-marketplace environment and to identify SMEs that had taken some steps along the way to online trading. A third stage involved holding four seminars in regional and rural areas (with the help of local business organisations) to ascertain first-hand how SMEs were reacting to the increasing use of e-commerce and to examine their ability to move to the electronic marketplace.

This paper is drawn from our experiences, informed by the literature review, with the case studies and with local business associations, government workers, and owners and employees of SMEs within Western Australia. (The full report of this study is available from the authors and for reasons of space we have not repeated details of the methodology and analysis in this paper.) Although the study was specifically concerned with participation in electronic marketplaces, the scope of this paper is relevant to the broader context of adoption of e-commerce by SMEs.

## **REFLECTIONS FROM THE STUDY**

There has been considerable work carried out to identify and analyse the drivers and barriers to SMEs participation in e-commerce, although perhaps less for specific areas such as electronic marketplaces. There are also several state and federal government initiatives and reports to promote the dissemination of electronic business throughout the country (Department of Foreign Affairs and Trade, 1997; DoIT, 2001; Jones Donald Strategic Partners, 2000). Local business associations devote many resources to training and encouragement and support, but levels of participation remain low. Of those who are participating there is little empirical evidence of the levels on integration they are achieving, but signs are that passive and exploratory participation far outweighs the expert state (Grewal, Comer, & Mehta, 2001).

Our six month study into the participation of SMEs in electronic marketplaces led us to discuss many of the issues with local business associations, state and federal funded employees and many small and medium sized business people. In several cases the barriers loomed very much larger than the drivers and there was concern, particularly amongst regional and rural business organisations, at the small number of SMEs that maintain an Internet presence for business purposes. There is widespread adherence to the traditional way of doing things and little evidence that SMEs are attempting to increase their competitiveness or broaden their markets beyond regional boundaries through the adoption of e-commerce. This led us to reflect on the reasons for this apparent inertia and to envisage new ways to raise awareness of the benefits of e-commerce and encourage further adoption. Our reflections have been discussed and informed by the many contributors to our study, the very people closest to the issues.

### **Are SMEs a homogenous group?**

Ghobadian and O'Regan (2000) argue that size is not a significant criterion when considering leadership, organisational culture or strategic planning of SMEs and therefore size is a good measure for defining SMEs, which can be treated as a homogenous grouping. In contrast, the European Union has recently adopted new recommendations to define what constitutes an SME (European Commission, 2003) to ensure better targeting of resources at smaller truly independent firms. The definition moves away from the traditional size criteria and classes firms into micro, small and medium based on the number of salaried workers, turnover, balance sheet and level of independence. In approaching the question of whether SMEs can be seen as a homogenous group in terms of e-commerce adoption, there is a scarcity of literature. For example, while it is clear that the owner/manager is a significant driver for e-commerce adoption, it is only recently that research has begun to appear that investigates the motivations behind their move towards adoption (Levy & Powell, 2003). We identified significantly different attitudes in the many business people we met during the study and have summarised their different perspectives, which to some extent parallel Grewal's measures for the nature of organisational participation in e-commerce (Grewal et al., 2001). It should be noted however, that as with all classifications, the groupings overlap and each individual SME has to be assessed on its own perspective.

- **The Nevers.** This group consists of a small group of business people who have no intention of moving to the electronic environment. The businesses tend to be small with very few employees and a stable, local market. They have no intention of expanding, are content with the status quo and can see no reason to own a computer.
- **The Toe Dippers.** A relatively substantial group of people that have basic computer needs, and limited skills in using them. Representative views from this group include the perceptions that the Internet is very useful for keeping a day to day hold on finance through online banking, that computers are useful for invoicing and recording stock holdings, and perhaps email might be worth considering when they have time. Although individual firms have slightly varying perceptions, this group has two points of common ground. They have little ambition to grow beyond their current size and they have an innate distrust of the IT industry, where IT service is seen as overpriced and inefficient. Again there is a level of contentment with the status quo.
- **The Paddlers.** This group most closely aligns with Grewal's passive state for organisations. The businesses are participants of e-commerce and are sometimes registered with an e-marketplace, but carry out virtually no business through it. They are likely to have email and an Internet connection, but are often hesitant in their use. Representatives of this group were the most numerous at our seminars and although eager to learn they lacked confidence in their ability to advance towards a higher level of involvement.
- **The Waders.** A small group that for reasons of choice or because of pressure from trading partners has moved into the electronic environment. This category reflects Grewal's exploration state where the firm has initiated electronic services 'and are beginning to learn how to do business through them' (2001, p 24). These firms are not always willing explorers, but may have been forced into the marketplace to follow trading partners. Their learning curve is often very steep and they face considerable problems in learning how to maximise the benefits the electronic environment offers them.
- **The Swimmers.** Representatives from this expert group were absent from the seminars, but were known to the local business organisations and government representatives and were used in our study as cases to illustrate the benefits of e-marketplace participation. We recognised two types of experts, although all the firms in this category are comfortable with many forms of e-commerce and are trading on electronic marketplaces as a regular part of their business. One type of firm appears to have moved to the expert state as part of their strategy to grow an established offline business; the 'clicks and bricks' firms of the business press (Downes & Mui, 1998). In contrast the second type has an online profile and is created as an e-firm to exploit the advantages of the electronic environment, for example to enable the owner to support a rural lifestyle or to service a geographically dispersed niche market.

When considered in this way, it can be seen that resources can best be targeted at specific groups to achieve higher levels of e-participation rather than disperse resources across the whole spectrum of SMEs. We believe the Paddlers and Waders are likely to be more receptive to learning programmes and more likely to benefit from them. Having identified the different groups of SMEs we then reflected on the drivers and barriers that had been raised by those involved in our study, and which factors were of the greatest benefit or concern.

### **Discussing the drivers and barriers**

The identified drivers of participation were visible in the motivations of the Paddlers and Waders. In particular, the enthusiasm of the owner/manager for the technology and the influence of the industry sector and Stockdale, Standing (Paper # 21)

relationships (particularly in the latter group) were significant. The 'technology champions' that we spoke to had achieved a level of competence through previous experiences and training, although we had anecdotal references to SMEs where the push to e-commerce had come through a family/staff member. The most forceful driver towards participation was the industry sector where SMEs were motivated by concerns to retain contracts with larger organisations. This was particularly true in the mining industry nearer Perth, although not evident at all in more rural areas such as Kalgoorlie.

Our study participants identified some initiatives that they believed were supporting and encouraging them in their slow move towards the electronic environment. In three of the four geographical areas we targeted there are impressive local community sites that encourage participation of businesses ([www.mysouthwest.com.au](http://www.mysouthwest.com.au), [www.albanygateway.com.au](http://www.albanygateway.com.au) and [www.ocean2outback.com.au](http://www.ocean2outback.com.au)). In the South West region the Chamber of Commerce has initiated an electronic marketplace that allows businesses to identify and select local trading partners; an initiative that will be taken up in both Albany and Geraldton. We found that such local e-marketplaces allow for SMEs to gain experience in an environment where help is easily available from a known source, where the technical requirements are easily achievable and where training needs are minimal.

The degree of encouragement and initiatives offered by Chambers of Commerce and Business Enterprise Centres was reflected in the enthusiasm of the firms that were either on the edge of e-commerce participation (Paddlers) or had begun to trade online (Waders). One particular initiative, the employment of a local IT coach to offer free support and advice on IT matters, on an individual basis, to local businesses is achieving good results and is to be extended. There are many government websites offering advice on a range of subjects from e-security (Trusting the Internet – a NOIE guide book) to technology advances (Broadband Bandwidth in Metropolitan Western Australia – commissioned by the WA Department of Industry and Resources). However, our experience was that the majority of the SMEs preferred to have the information delivered through seminars or business association communications such as newsletters, where the information was presented in easily digestible format and there were opportunities to ask questions on an individual level. These more personal methods overcame the problems of time and resources needed to locate and access relevant information from a wide variety of sources and SMEs are notoriously short of time and resources. Additionally, one of the criticisms frequently made to us was that much of the information published is generic in nature and does not address the individual needs of different SMEs.

The barriers to participation in e-commerce and e-marketplaces were very evident amongst SMEs in the study and were also cited as concerns by local business organisations. Lack of knowledge of the electronic environment and lack of resources, particularly time, within a company to effect the necessary changes for electronic commerce were considered to be major drawbacks to improving e-enablement amongst local SMEs. Indeed, SMEs that were interested in progressing their online trading cited lack of time to investigate and identify suitable marketplaces as a major reason for non-participation.

Technology constraints were a major difficulty and discussions on the subject were frequent and emphatic. A major concern remains connectivity and the ability to access the Internet at all times at a reasonable cost, a prerequisite for trading through an electronic marketplace. Even in Bunbury, only 200km from Perth and one of WA's largest towns, SMEs experience difficulties in maintaining a connection to the State Governments e-marketplace. A second technology concern is lack of trust in the IT sector and fear of accruing essential, but expensive support costs if a firm committed itself to trading online. Even as prices for hardware and software fall, many firms anticipate that support costs will rise steeply as they become more integrated to the e-environment.

Recognition of the ability of the Internet to enhance a business and a knowledge of the nature of e-marketplaces in global trading were virtually non-existent across the spectrum of SMEs. For example, in the case of some Paddlers we found that their belief in the effectiveness of their websites was minimal, but they had no monitoring devices, such counters or separate email addresses, to gauge the level of visitors to their site. The lack of confidence in the websites appeared to be based on confusion as to the role of the website within the business and how it could enhance the firm's profile. In a similar way, many Waders who had become involved in online auctions to retain their contracts with larger organisations had not used those auctions to bid for business from other organisations, despite being familiar with the mechanism. These firms were reacting to existing trading partners and did not recognise the marketplace's ability to enable them to pro-actively extend their market.

In identifying the barriers to participation in e-business, and specifically e-marketplaces there is a tendency to concentrate on the actions of the SMEs. However, there are obstacles that are not within the power of these firms to overcome individually. The most obvious example here is telecommunication problems. Other examples raised during our study centred on the lack of understanding by larger organisations of the different requirements of SMEs. This was particularly true in e-marketplaces where the supposed ability of firms of all sizes to compete is not reflected in reality. High fees, lack of common standards and complex software



requirements discourage smaller firms from pursuing any initial interest they may have had. One commercial e-marketplace targeted SMEs as potential participants but apparently failed to realise that an outlay of \$5000 in fees was unrealistic for many SMEs uncertain that they would make any profit at all from the new environment. Criticism was also levelled at the WA Government's e-marketplace (GEM) where problems raised by prospective participants included requirements for complex online catalogues, a perceived lack of support from the marketplace and discouraging experience with connectivity.

## **SUMMARY**

In drawing together the difficulties expressed by SMEs and local business associations, we found three distinct areas of impediments:

### **Lack of Awareness of SME Needs**

There is a gap in understanding between larger organisations, intermediaries and in some cases government bodies, and SMEs. These bodies do not show signs of understanding the very real fears of small businesses in tackling what are seen as huge obstacles to trading online and assume a level of technical knowledge and available resources that are not realistic for the majority of SMEs. Small businesses get discouraged from asking basic questions and thereby cannot gain a full knowledge of the steps they need to take to successfully trade online. This appears to be a factor in the lack of trust evident in SMEs, that extends to the IT industry as a whole. Even where e-commerce initiatives appear to target SMEs there is little understanding of the needs of smaller businesses as regards training, costs and technical capabilities.

### **SME Awareness of the Electronic Environment**

Our experiences reflected the literature in highlighting the lack of awareness amongst many SMEs of the advantages to be gained from e-commerce. Although there is understanding of the benefits of participating in different aspects of e-commerce amongst some companies, SMEs need to see evidence of benefits, before incurring costs in adoption. These benefits may be particularly elusive in industry sectors where the uptake of e-commerce is slow and a firm wishing to participate may find itself as a leader in the move online; a position that rarely appeals to smaller businesses. Initiatives for increasing awareness of benefits have been undertaken at many levels of government and for motivated SMEs there is a wealth of information to hand. The problem lies with providing incentives and resources for the less motivated majority.

### **Technology**

A consistent problem for many SMEs is the difficulty of connecting with the Internet. For example, the connection to GEM was frequently timed out at an early stage, even in Bunbury, a town only 200 kilometres from Perth. In more remote areas connection problems are a major hindrance to moving a business to an online strategy. Although satellite ostensibly covers much of rural Australia, telecommunication company charges are rarely justifiable for small companies. Overall there is an extensive lack of confidence in the ability of communications companies to supply the required level of connectivity for committing regional and rural companies to the virtual trading world at an acceptable price.

A final point that needs to be emphasised is that few SMEs will move into the e-environment without substantial encouragement. The level of e-commerce activity amongst SMEs remains low and a website and email address are considered to be major steps towards e-commerce. There is a lack of confidence and trust in their own ability to master the technology, in the support they can expect from market makers and in the IT and communications industry to offer effective support.

## **CONCLUSIONS AND RECOMMENDATIONS**

In reviewing our interactions with a wide range of people in the course of our study we came to a number of conclusions. While the drivers and barriers of e-commerce adoption are well recognised, we believe that the motivations of the different groups of SMEs have been underestimated. It appears, rightly or wrongly, that there is a general perception that all SMEs should be moving into the electronic environment. While we agree with Ghobadian and O'Regan (2000) that size is not the determining factor, we have come to believe that resources should be more concentrated on SMEs that have the need or motivation to become e-enabled. The Paddlers and Waders that we identified should be supported and encouraged on a more targeted basis. Once their level of participation has increased, we believe that the changes this will bring will encourage the Toe Dippers to move into the water. Our recommendations to achieve this are as follows:

- SMEs need individual help from local business associations in conjunction with educational establishments and local, state and federal government bodies to encourage them to move to Internet

trading. These SMEs should then be encouraged to disseminate information and training to other companies, both in their local area and through their business relationships. In effect, local 'technology champions' could be created, particularly in regional and rural communities and supported either through existing community websites or specially created sites. These websites can support the technology champions with online learning programs, bulletin boards, and troubleshooters. Community involvement through schools, business associations and local government would enhance such programs.

- More support at State and Federal level should be directed at local area electronic marketplaces such as the initiatives of the Joondalup/Wanneroo councils' Regional Electronic Marketplace ([www.2cities.com.au](http://www.2cities.com.au)) and Bunbury Chamber of Commerce's SWIM marketplace ([www.mysouthwest.com.au](http://www.mysouthwest.com.au)). These e-marketplaces allow for cheap and easy access by SMEs to the principles of online trading and have the potential to grow into sophisticated electronic trading hubs, taking the local businesses they service along a gradual learning curve with them. Such marketplaces are directed at SMEs and offer a step by step familiarisation to the process of moving into the electronic environment, thereby removing many of the apprehensions of people towards the technology. If these marketplaces are presented in conjunction with community websites there are more incentives for local businesses to incorporate such sites into their daily business lives, and lead to a building of trust and confidence. This approach could be particularly effective in regional and rural areas as it allows for greater recognition of local suppliers, enhances the sense of community and fosters the growth of regional electronic communication and familiarity with the technology.
- There are a number of corporate, government, and non-government bodies involved with SMEs at a wide variety of levels in the e-marketplace environment. These include large companies, business organisations and associations, market makers, consultants and educational establishments. On an individual basis, recognition of the levels of help that an SME may need is not an issue, but there is a broader misunderstanding of the requirements that would facilitate the move to e-commerce for smaller businesses. There are also misconceptions regarding the role that SMEs can play in the supply chain of larger organisations. Resources aimed at educating and informing the spectrum of stakeholders would enhance their ability to deal more effectively with SMEs and give greater recognition to the potential role of rural SMEs in virtual supply chains.
- Previous studies have highlighted the problems that SMEs have in finding reliable and effective business consultants and IT support. Some recognition of quality or a system of industry benchmarking may alleviate the distrust that is evident in this area. The establishment of such a benchmarking system is a large undertaking and there is room for argument as to whether it should be industry or government led. A contribution from industry associations may alleviate some of the distrust in the shorter term.
- A concerted approach to establishing reliable, effective and cheap connection to the Internet for urban, regional and particularly rural communities is required. It is beyond the scope of this project to make any analysis of how this can be achieved. However, it is evident from our study (and a range of other sources) that this issue is perceived by SMEs to be a major hindrance to the uptake and expansion of e-commerce.

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