A classification model to support SME e-commerce adoption initiatives

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Abstract

Purpose – Adoption and effective use of e-commerce remains low among small to medium-sized enterprises (SMEs) despite substantial investments. This paper aims to analyse the e-commerce adoption paths of SMEs to identify a specific group that would benefit the most from e-commerce initiatives.

Design/methodology/approach – This qualitative study builds on a government-funded research project that aimed to improve SMEs’ understanding of on-line trading. Data were drawn from case studies of smaller businesses, stakeholders and a series of seminars. A literature review supported the empirical data.

Findings – The paper finds that SMEs have significantly different attitudes to online business and cannot be regarded as a homogenous group for e-commerce initiatives. Rather, specific targeting would enhance participation and lead to more effective use. Using categories derived from the literature, a classification of five SME groupings based on firms’ motivations is proposed. It is recommended that adoption initiatives are targeted at two groups which have the need or desire to become e-enabled.

Research limitations/implications – By providing recommendations for targeted initiatives the paper contributes to the development of effective support for SMEs’ e-commerce adoption. Motivators and inhibitors to adoption are discussed within the context of existing literature to confirm and challenge current thought and present the case for more research into SMEs’ motivations.

Originality/value – Value lies in the paper’s use of empirical data derived from three separate methods of data collection and informed by the literature. This provides rich data to enable wider implications of the subject area to be discussed and contributes new perspectives to the SME e-commerce adoption debate.

Keywords Small to medium-sized enterprises, Electronic commerce

Paper type Research paper

Introduction

Small and medium-sized businesses (SMEs) make substantial contributions to national economies (Jutla et al., 2002; Poon and Swatman, 1999) and are estimated to account for 80 per cent of global economic growth (Jutla et al., 2002). In a period of major change arising from the growth of the electronic business environment (Modahl, 2000; Timmers, 1999), it is understandable that governments invest heavily in programmes to increase SMEs’ adoption of e-commerce.
Some success in adoption rates has been reported, particularly among larger SMEs (Van Beveren and Thomson, 2002). However, the use of e-commerce applications remains obstinately low (Goode, 2002; Jutla et al., 2002; Korchak and Rodman, 2001; Lewis and Cockrill, 2002; Stokes, 2000), raising the question of why adoption programmes are not more successful.

In a recent federally-funded study on West Australian SMEs’ participation in electronic marketplaces (Standing and Stockdale, 2003) the authors examined and discussed e-commerce adoption with a range of people from local business associations, local, state and federal government offices, and small and medium size businesses. Our experiences during the research study led us to conclude that the motivations for adoption and use of e-commerce by SMEs are underestimated or overlooked. We further concluded that e-commerce initiatives were directed too widely and that a more targeted approach would be more effective. Further analysis of our research data resulted in a classification of five SME groupings that reflected differing perceptions of e-commerce and identified two groups that required support to progress their participation.

This paper discusses motivators and inhibitors that affect SME participation in e-commerce as identified in the literature, before identifying differing perceptions that influence adoption levels. A classification of five SME groups based on firms’ motivations to adopt and use e-commerce is proposed and discussed. Finally, we provide conclusions and recommendations, based on the concerns raised in the original study.

Research study of e-commerce adoption by SMEs

The study reported in this paper was carried out over a six months period for the Rural Industries Research and Development Corporation, a body funded by the Australian Federal Government [1]. The aim was to enable regional and rural SMEs in Western Australia (WA) to gain an understanding of e-commerce and the decision-making processes that support effective participation in online trading.

The study was based on four sources of data, which also inform the discussion and analysis of this paper:

1. The literature review. We examined the literature on SMEs’ adoption of e-commerce to identify recognised drivers and barriers. Although our focus was primarily on Australian SMEs, the scope of the literature reviewed was international.

2. Identification and examination of case studies. Case studies were used to illustrate the types of internet e-marketplaces that support online trading to demonstrate how participating companies used them. We selected nine case studies from the literature, the internet and through business contacts in WA. Six companies were e-marketplaces suitable for SME participation and three were SMEs already participating in online trading via an e-marketplace. Four of the cases are well known to us from previous research and the other five were examined from the internet.

3. Interaction with stakeholder groups. Over the period of the study, there was significant interaction with business organisations and State and Federal employees tasked with encouraging SME participation in e-commerce. The stakeholders included federal small business development officers, and staff from chambers of commerce, business enterprise centres and regional
development offices. The stakeholders contributed to the research through describing the initiatives they had run to increase e-commerce awareness, discussing several SMEs as examples of success (and failure) and identifying barriers to adoption in their own regions.

(4) Seminars. Four seminars in regional and rural areas were organised through the auspices of local business organisations. The scope of these seminars covered the spectrum of e-commerce issues. A 20-minute presentation on e-commerce and online trading was followed by question and answer sessions and general discussion, lasting up to two hours. Attendance at the seminars averaged 15 people, which was considered a “respectable turnout” by the business associations involved. Input by the stakeholder group moved the discussions across many topic areas, but enabled the researchers to maintain an observation stance.

The region of WA provides an interesting context for an e-commerce study in that it has attributes that would appear to make online trading desirable: it is geographically remote, culturally diverse, technologically advanced and has extensive trading links from its export of raw materials and agricultural goods. SMEs in this region therefore have much to gain from e-commerce adoption in relation to the extension of markets and overcoming distance related problems with potential trading partners.

This paper is drawn from our experiences, informed by the literature review, with the case studies, participating SMEs and the stakeholder groups within WA. Drawing the data collection from these sources had both strengths and weaknesses. The main advantage lay with the informal setting of the seminars, where attendees were in a familiar environment and discussed issues more freely than would have been possible in structured interviews or through surveys. The seminar context also facilitated exchange of information and experiences between SMEs, with input from other stakeholders. The case studies were introduced during the initial presentations to the seminars and thereby provided context for discussion enabling those present to draw comparisons with their own e-commerce experiences and to seek clarification from others. Conversely, the informality led to an unstructured approach to the data collected and a less focussed direction for discussions. While this has disadvantages for achieving any quantitative results, it did allow for an interpretive appreciation of different people’s perceptions of the need for e-commerce adoption and the different levels of use considered desirable.

Although the primary aim of the study concerned participation in online trading, the broader context of adoption of e-commerce by SMEs became a focal point. In several cases the barriers loom very much larger than the drivers and there are concerns, particularly amongst regional and rural business organisations, at the small number of SMEs that maintain an internet presence. 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 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.

**Motivators and inhibitors in e-commerce participation**

There are a number of recognised factors that affect the ability of SMEs to adopt and develop their e-commerce involvement. These factors can be seen as either motivators
or inhibitors according to the perspective of an individual firm and we have therefore not delineated them but rather summarised the key points from the literature. This summary provides a framework against which to discuss the views and experiences of the participants of our study:

- **Owners and management.** An owner’s enthusiasm for the technology has been identified as a major motivator in SME adoption of e-commerce (Cragg and King, 1993; Levy and Powell, 2003; Mehrtens et al., 2001). This can be extended to include senior management (DeLone, 1988; Poon and Swatman, 1999) in larger SMEs and enthusiastic employees or family members in smaller businesses. The “technology champion” is a strong driver in the initial move towards participation, which may begin with entry level technologies such as a web site or e-mail, before familiarity encourages the moving to a higher level of adoption (DoIT, 2001).

- **Industry sectors and relationships.** The industry sector may have a significant influence on an SME’s decision to participate in e-commerce activities (Cragg and King, 1993; Poon, 2000). The level of take-up by suppliers and customers may have a corresponding effect on a firm’s commitment to e-commerce (Lewis and Cockrill, 2002; Mehrtens et al., 2001). For example, the e-skills demanded of the academic publishing industry far exceed those of consumer publishers. Smaller firms in the latter industry sector have very low levels of e-commerce skills in contrast to the former (Stockdale and Royle, 2000). However, Levy and Powell (2003) found only limited evidence of such pressure within groups of firms, although in contrast, Stockdale and Standing (2003) found that customers in a position of power in a business-to-business relationship have considerable influence on the decision to adopt. This supports the findings of Mehrtens et al. (2001), that it is more often the customer than the supplier that influences adoption.

In relationships where large firms use SMEs in their outsourcing, the motivation to adopt is fuelled by the integration of trading partners into organisational extranets. Large organisations are increasingly outsourcing many of their requirements, and e-enabled SMEs have the ability to respond more quickly to changing demands than their large counterparts enabling them to take advantage of outsourcing opportunities (Bartlett and Ghoshal, 2002, Walczuch et al., 2000). Conversely, SMEs that have few e-competencies will face barriers in entering the outsourcing market.

- **Expectations and realisation of benefits.** Extensive coverage of e-commerce in business publications includes promises of myriad benefits including substantial cost savings, improved communications, access to wider markets and improved competitiveness. However, many SMEs remain unsure of the benefits they can achieve (Goode, 2002), due in part to unrealistic expectations and the difficulties of effective evaluation (Poon, 2000). Confidence in the realisation of benefits remains low and even for SMEs who gain in the short-term, advantages are “marginal and often circumstantial” (Lewis and Cockrill, 2002, p. 198).

- **External factors.** Globalisation and the current economic climate have brought great changes to the business environment. In addition to the trend for outsourcing, deregulation of many industries has opened up markets for companies that are able to respond to the changes and who have networking capabilities to facilitate partnerships across wide geographic areas (Dutta and
Evrard, 1999; Fariselli et al., 1997). Changes in trading boundaries have had a major effect on the ability of SMEs to cross national borders and broaden their markets. For example, in Europe many SMEs have adopted 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 and Evrard, 1999).

- **Lack of knowledge.** Lack of technical knowledge, combined with little appreciation of the benefits of e-commerce, remains a major difficulty for SMEs. Mehrtens et al. (2001) describe this as lack of organisational readiness that is compounded by difficulties in accessing affordable, quality services from external sources (Bode and Burn, 2001). IT consultants are seen as too expensive and unhelpful (van Akkeren and Cavaye, 1999). Insufficient e-competencies within a firm remain a barrier to e-commerce adoption unless there is a forceful driver towards adoption.

- **Technology concerns.** Several concerns relating to technology affect SMEs' participation in e-commerce. One concern is a mistrust of the IT industry, which is perceived to be too fast moving, and too changeable (van Akkeren and Cavaye, 1999). This compounds the largely negative view of technology consultants where lack of trust remains a major barrier to e-commerce adoption in SMEs.

  Another concern for 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 further concern is that of connectivity. This is often a regional problem related to the telecommunications industry and political will. For example, in Australia the construction of a telecommunications infrastructure which is available to all is hampered by the vast distances involved and the high costs of connection. The availability of the internet in rural areas where many SMEs are located remains a significant problem (Swatman, 2000) and the digital divide between metropolitan and rural areas is growing (Allen Consulting Group, 2002; Curtin, 2001; DoIT, 2001).

- **Lack of resources.** Lack of resources remains a barrier to SME e-commerce participation (Cragg and King, 1993). Although the cost of internet connection is falling and e-mail 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 telecommunication 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 SMEs, particularly of the smaller firms that lag behind larger SMEs (Lewis and Cockrill, 2002). However, motivation to find the resources may be low as 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 (Walczuch et al., 2000).
The drivers and barriers discussed above take a generic view of the adoption rates from an SME perspective, and there is little differentiation of firms into different groupings, related to size, structure or other distinguishing factors. The next section considers whether SMEs can be deemed a homogenous group in the context of e-commerce.

Identifying SME perspectives of e-commerce adoption

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 and Powell, 2003). In examining the data from our seminar groups, and drawing on the case studies, we identified significantly different attitudes towards e-commerce adoption and use. We have summarised these perspectives into five broad groups that recognise varying motivations and inhibitors that affect SMEs and shape their perceptions of e-commerce. These motivations and inhibitors to some extent reflect the innovation characteristics of relative advantage, compatibility, complexity, trialability and observability developed by Rogers (1983). However, the groups that we have identified are determined from the attitudes of the individual SMEs and the business pressures that affect them. We have therefore turned to work that derives from the literature of organisational participation and change to inform the categories that reflect the activity levels of the SMEs with regard to e-commerce (Grewal et al., 2001). Grewal et al. (2001) classify the levels of firms’ activity into three states: exploratory, expert and passive. Although they specifically address participation in e-markets, the states of active learning, substantive knowledge and an observation stance (where firms are unwilling to expend resources beyond the minimum required) are recognisable in SME attitudes to e-commerce. We have added two levels of activity to differentiate between the perspectives we identified, and used more colloquial terms that were deemed more memorable by SME practitioners. As with all classifications, the categories are not definitive and individual SMEs may appear to straddle the groups.

Landlubbers
This relatively small group were not evident at the seminars, but were identified by all the local business organisations who referred to SMEs in their regions that have no intention of moving to the electronic environment. These 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.

Toe dippers
A relatively substantial group of firms, these SMEs have basic computer needs and limited skills in using them. They are recognisable in Grewal et al.’s (2001) passive classification in that they are unwilling to expend resources beyond a minimum level, but are differentiated by their lack of intention to progress to any further level. 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 e-mail 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 services are seen as overpriced and inefficient. Again there is a level of contentment with the status quo.

**Paddlers**
This group most closely aligns with Grewal et al.’s (2001) passive state for organisations and while they maintain an observation stance, there is intention to progress. 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 e-mail and an internet connection, but are often hesitant in their use. Representatives of this group were the most numerous at our seminars and although they expressed an eagerness to learn, they lacked confidence in their ability to advance towards a higher level of involvement.

**Waders**
This grouping is characterised by SMEs, that for reasons of choice or because of pressure from trading partners, have moved into the electronic environment. This category reflects Grewal et al.’s (2001, p. 24) exploration state where the firm has initiated electronic services “and are beginning to learn how to do business through them”. These firms are not always willing explorers, but may have been forced into e-commerce adoption to follow trading partners. For example, one participant firm in our study described how a long-term trading partner had moved to online auctions, forcing the participant to follow or lose their business. As in this case, the Waders’ learning curve is often very steep and they face considerable problems in learning how to maximise the benefits the electronic environment offers them.

**Swimmers**
Representatives from this group, recognisable as Grewal et al.’s experts, were absent from the seminars, but again were known to the local business organisations and government representatives. One specific case was used in our study 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 e-commerce applications and online trading is an integral 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 and Mui, 1998). In contrast, the second type of SME 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.

The classification indicates that resources can best be targeted at specific groups to encourage higher levels of e-participation, rather than disperse resources across the whole spectrum of SMEs. In the next section we reflect on the motivations and inhibitors raised in our study, to examine why we believe that two groups, the Paddlers and Waders, are likely to be more receptive to targeted adoption programmes.

**Discussion of findings**
Two groups emerged from the classification as the most likely to benefit from targeted adoption programmes. The Landlubbers and Toe Dippers are content with the status...
quo and unlikely to respond to initiatives in the current environment while the Swimmers already display substantive knowledge. It is representatives from the Paddler and Wader groups that were most evident at the seminars seeking information and support.

Identified motivators and inhibitors of e-commerce participation were evident in the seminar discussions and supported by the examination of the SMEs in the case studies. This section first discusses the reasons given for adoption of e-commerce before discussing factors that the SMEs believed affected their ability to increase use.

Reasons for adoption

The literature cites enthusiasm of the owner/manager as a significant motivator for adoption. This was supported by the study where “technology champions” were recognisable in several firms. They had achieved a level of competence through previous experiences, training, or in some cases, through a family/staff member. Conversely, we identified an owner who had significantly disadvantaged his firm by resistance to e-commerce. External pressures eventually forced adoption of online trading, but the firm continues to struggle to gain additional benefits from its developing e-competencies.

The most forceful driver, although not necessarily the most common, 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 (a major contributor to the Australian economy) where the major organisations have enthusiastically adopted e-business and are imposing the e-environment on their suppliers. For example, one medium-sized engineering firm had previously little experience of e-commerce due to the lack of interest of the owner. A major trading partner introduced online auctions over a period of six months and forced the smaller supplier into a new environment. The firm is now struggling to adjust to new business processes and is yet to realise the potential of its e-commerce involvement.

Other study participants identified initiatives that they believed were encouraging them in their, often hesitant, move towards the e-environment. In three of the four geographical areas we targeted there are impressive local community sites run by local councils and business associations. The community sites are introducing simple e-marketplaces, alongside the community content, that allow businesses to identify and select local trading partners. We found that such local e-marketplaces allow 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. In two cases, SME owners quoted these sites as the motivating influence on their decision to connect their businesses to the internet after being involved with creating community site content for their sporting clubs. Another small businessman was motivated by his family’s frequent use of the community site for accessing local information.

There are many government initiatives aimed at overcoming the lack of knowledge so often cited as a barrier to e-commerce adoption. However, our experience was that the majority of the SMEs preferred to have information delivered through business association initiatives such as seminars or newsletters, where the information was presented in easily digestible format and there were opportunities to ask questions on an individual level. One particular initiative, the employment of a local IT coach to
offer free support and advice to individual local businesses is achieving good results and is to be extended. These more personal methods overcame the problems of locating and accessing relevant information from a wide variety of sources. 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 SMEs.

Despite these motivations to adopt, factors that inhibited participation were discussed at greater length by the SMEs and by local business organisations.

Inhibitors to adoption

Although scarce resources are considered to be a drawback to improving e-enablement among SMEs, only lack of time was discussed in any detail in the study. SMEs that were interested in progressing their online trading cited lack of time to investigate and identify suitable sites as a major reason for non-participation in online trading. Although size of firm is often allied to the lack of resources, this was not evident in our study. For example, the owner of a micro firm attended a seminar to increase his knowledge of overseas marketplaces while the manager of a medium-sized firm was primarily concerned at the lack of in-house expertise to maintain the web site. Where large corporations were forcing the change to the e-environment, the ability of some smaller firms to cope was impressive with examples of steep learning curves successfully negotiated and acquisition of computer hardware and software through family and friends. In one case the owner’s son returned, with his laptop, from university to participate successfully in an online auction.

Despite this, the majority of the SMEs in the seminar were not proactive in adoption and recognition of the ability of the internet to enhance a business was virtually non-existent. 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 e-mail addresses, to gauge the level of visitors to their site. One SME owner explained how he perceived his web site to be useless until he realised the extent to which he used local business web sites to source his own personal purchases. The lack of confidence in the web sites appeared to be based on confusion as to the role of the web site 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 proactively extend their own market reach.

Technology constraints were seen by all those present at the seminars to be a major difficulty and comments were frequent and emphatic. A key concern remains connectivity and the ability to access the internet at all times at a reasonable cost. Another issue, frequently referred to in SME literature, 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 in the e-environment.

Other stakeholders and adoption

In identifying the barriers to participation in e-business, there is a tendency to concentrate on the actions of the SMEs. However, our participants identified obstacles
that are not within their power 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 failed to realise that an outlay of A$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 a government-run e-marketplace where problems raised by prospective participants included requirements for complex online catalogues (beyond the capability of our participants), a perceived lack of support from the marketplace helpdesk and discouraging experiences with connectivity.

**Summarising adoption factors**

We considered the motivations and inhibitors discussed by the SMEs against the literature to identify distinct impediments to e-commerce adoption.

**SMEs in the e-environment**

Our experiences reflected the literature in highlighting the lack of awareness amongst many SMEs of the advantages to be gained from e-commerce (Goode, 2002; Poon, 2000). Although there is some understanding of the benefits of participation SMEs need to see evidence of real advantage before incurring adoption costs (Poon, 2000). The study confirmed that the enthusiasm of the owner or the activity within an industry sector have a strong influence on adoption and levels of use although there was some evidence of inability to progress use to a more expert state. Lack of knowledge on how to reposition businesses for the online environment was evident. This supports Mehrtens et al.’s (2002) identification of lack of organisational readiness as a factor and it was apparent in the way that firms failed to be proactive even at the Wader’s level of participation.

Lack of resources was not discussed as an inhibitor as significantly as the literature would imply. There may be several reasons for this. The majority participants in our study were Paddlers and Waders and therefore already online. Those forced into more activity by trading partners were often given support in the form of software and training by the larger organisations. The context of the seminars in a local business setting may have restrained comments on lack of resources such as money, whereas lack of time was a common complaint.

**Stakeholder lack of awareness of SME needs**

We perceived a gap in understanding between larger organisations, e-commerce intermediaries, government bodies, and SMEs. These larger bodies show few signs of understanding the very real fears of small businesses in tackling what are seen as huge obstacles to trading online. They assume a level of technical knowledge and availability of resources that are not realistic for the majority of SMEs. Small business people get discouraged from asking basic questions and thereby cannot gain full knowledge of the steps they need to take to successfully trade online. This appears to
be allied to the lack of trust evident in SMEs, which extends to the IT industry as a whole (Bode and Burn, 2001; van Akkeren and Cavaye, 1999). Even where e-commerce initiatives appear to target SMEs there is little understanding of the needs of smaller businesses with regard to training, costs and technical capabilities.

**Technology**

A consistent problem for many SMEs is the difficulty of connecting with the internet. In regional and rural areas connection problems are a major hindrance to moving a business towards an online strategy (Swatman, 2000). For example, although satellite ostensibly covers much of rural Australia, telecommunication company charges are rarely justifiable for smaller firms. 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 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 web site and e-mail address are considered to be major steps towards e-commerce and firms are rarely proactive in extending their levels of use. There is a lack of confidence and trust in their own ability to master the technology, in the support they can expect from larger stakeholders and in the IT and communications industry to offer effective support.

**Recommendations for targeted initiatives**

There is a general perception that all SMEs should be moving into the electronic environment, but we believe that resources should be more concentrated on SMEs that have the need or desire 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 act more progressively. Our recommendations for supporting these groups are:

- SMEs need more personalised help, directed through local area initiatives, to encourage them to be more active in e-commerce. This help should come from a range of stakeholders including local business associations, educational establishments, local government, and State and Federal government bodies. E-enabled 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. After initial backing on an individual basis, we recommend that SMEs be supported either through existing or newly created community web sites offering such features as online learning programs, bulletin boards, and troubleshooting. This recommendation is based on the specific feedback of the seminar groups where many positive influences came through the community experience and were then related to the e-business environment. We found examples of firms that had moved from Landlubber and Toe dipper status to Paddler levels of activity because of involvement with community sites for personal reasons (this was particularly true of sports clubs). Community involvement through schools, business associations and local government would enhance such programmes.
This approach could be particularly effective in regional and rural areas as it allows for greater recognition of local trading partners, enhances the sense of community and fosters the growth of regional electronic communication and familiarity with the technology.

- Many of the larger stakeholder bodies involved with SMEs have a broad misunderstanding of the requirements that would facilitate their move to e-commerce. 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 SMEs in the e-business environment.

- 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.

Conclusions
In reviewing our interactions with a wide range of people in the course of our study we came to the following conclusions. The data collected from the seminar groups, the local business organisations and the case studies led us to believe that the targeting of e-commerce initiatives is too broad. 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 or overlooked. We identified five categories of SMEs, only two of which are seeking support to increase their use of e-commerce. The two low participatory categories of Landlubbers and Toe dippers have little motivation to progress beyond their current status quo. The Swimmers, where e-commerce is integrated into the firm, displays substantive knowledge and appear to be self-motivated. It is in the two remaining groups, Paddlers and Waders, that initiatives are likely to be most effective. SMEs in these two groups have already begun some level of e-commerce activity but are unsure of how to proceed. The motivations to adopt in these two groups are often related to need rather than choice and e-commerce activity tends to be reactive. To enhance participation and enable SMEs to gain organisational readiness, a programme of structured learning initiatives delivered to targeted groups at a local level would offer substantial benefits for SME e-commerce participation.

Note
1. The full report of this study is available from the authors.
References


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