

Strategic Intent and E-Business in SMEs: Enablers and Inhibitors

Margi Levy, University of Warwick, UK
Philip Powell, University of Bath, UK
Les Worrall, University of Wolverhampton Business School, UK

ABSTRACT

Small firms' use of e-business is limited, and little is known about what drives them to embrace e-business. Using survey data from 354 small and medium-sized enterprises (SMEs) in the UK West Midlands, this paper investigates e-business use and drivers. It first discusses different growth strategies adopted by SMEs and then reviews Internet adoption in SMEs. Drivers and inhibitors of e-business are identified. Three research questions are derived: Does strategic intent drive e-business adoption, and is it a factor of market position or product innovation? Is this consistent across sectors? How is strategic intent and industry adoption influenced by the enablers and inhibitors of e-business adoption? This research demonstrates that strategic intent influences decisions to invest in e-business. Those SMEs remaining in their existing markets are the least likely to invest, primarily due to the Internet not being seen as necessary for growth. Product innovation rather than market penetration drives e-business, and e-business drivers and inhibitors provide insights into this.

Keywords: e-commerce in SMEs; e-commerce managerial issues; e-commerce problems; e-commerce risks; small to medium-sized enterprises (SMEs)

INTRODUCTION

Small to medium-sized enterprises (SMEs) (firms with 10 to 249 employees under the EU definition) are a vital and growing part of many economies. The Internet is seen as a critical technology by governments around the world to sup-

port the development of this sector. Governments have instigated intervention projects and offer financial incentives to encourage SMEs to adopt the Internet and subsequently to develop e-business systems that will enable them to trade more effectively with business partners (Evans, 2002; Zhu et al., 2003). Despite this ef-

Figure 1. Strategic intent framework (Adapted from Ansoff, 1965)

	Current Product	New Product
Present Market	Market Penetration	Product Development
Future Market	Market Development	Diversification

fort, penetration of e-business in SMEs is slow (Kendall et al., 2001).

The limited research into Internet adoption and e-business in SMEs reveals perceived benefit as the major driver (Mehrtens et al., 2001; Poon & Swatman, 1999). Other factors, however, may influence SMEs' decisions to invest in e-business. For example, research identifies SMEs' adoption of information and communication technologies (ICT) to manage and grow as either cost or valued-adding (Levy et al., 2001), largely depending upon the firm's strategic intent. This paper investigates whether and in what way strategic intent affects SMEs' attitudes toward Internet adoption. It also considers drivers and inhibitors of e-business adoption to determine any relationship between these and strategic intent. Here, strategic intent encompasses two dimensions: markets and products. Most SMEs plan growth through some combination of these (Storey, 1994).

The paper surveys SMEs in the UK West Midlands to investigate these issues. It first discusses different growth strategies adopted by SMEs and then reviews Internet adoption in SMEs. Drivers and inhibitors of e-business are identified. Three research questions are derived: Does strategic intent drive e-business adoption, and is it a factor of market position or product innovation? Is this consistent across sectors? How is strategic intent and industry

adoption influenced by the enablers and inhibitors of e-business adoption? Survey data is used to address these questions, and the implications are analyzed.

SMES AND STRATEGIC INTENT

Strategy is action taken by the firm once in business (Storey, 1994); market positioning; new product introduction, and technological sophistication are usually the key drivers. Storey suggests that it is the relationship between the entrepreneur, the SME's strategy, and its context that is important for growth. Strategic intent in SMEs may be understood using Ansoff's (1965) framework. He identifies four strategies for growing businesses (Figure 1).

Market penetration is defined as continuing to sell current products into current markets. Market development is selling current products into new markets. Product development is selling new products into current markets. Diversification is selling new products into new markets.

This model is relevant to SME's strategic intent as it focuses on growth. The model uses the current growth strategies of the firm to consider the direction it is taking in relation to the current mix of product and market development. Understanding the growth direction enables business strategy to be better directed toward achieving growth. The strategic focus either may be toward product development or toward market development. The fourth

strategy, diversification, is more difficult, as firms are moving into uncharted territories in both product and market development (Ansoff, 1965).

DEFINING E-BUSINESS

E-business has grown rapidly over the last few years. The Internet and the development of the World Wide Web have opened up the potential of the global information society. Growth is driven by accessibility of the Internet; firms using the Internet for electronic transaction; digital delivery of informational goods and services such as music; and finally, retail sale of tangible goods (Currie, 2000). E-business is a generic term for the development of strategies in order for firms to use the Internet (Sauer, 2000). There are three main aspects to e-business: intra-organizational (internal to the firm); inter-organizational (between firms in supply chain); and e-commerce (customer to firm). Both intra-organizational and inter-organizational e-business usually are undertaken to improve productivity through better internal communication and processes. E-commerce is seen as providing an alternative route to market for both tangible and intangible goods.

Precise Internet benefits remain unclear, but speculation suggests that the greatest benefits occur under full supply chain integration (Currie, 2000). Value arises once businesses use the knowledge and experience to produce outputs accessible through the Internet. The potential for transformation is thought to emerge once businesses recognize the need to reorganize processes and focus on core competencies (Willcocks & Sauer, 2000).

Opportunities for e-business transformation require visionary changes in four aspects of the business: communication,

information, transaction, and distribution. Communication includes relationship building between strategic partners through new channels offered by the Internet. Information distribution is defined as accessibility of knowledge within and between firms and market enabled by the Internet. Transactions are considered as electronic order processing and tracking. Distribution is the ability to use the Internet for delivery and support of goods and products (Angehrn, 1997). These need to be seen within the context of an e-vision (Feeny, 2000) that identifies new business opportunities within a dynamic market that focuses on customers' needs.

E-BUSINESS AND SMES

SMEs believe that the Internet will enable them to reach wider geographical markets and increase customers (Lunati, 2000). For these firms, e-business adoption is often reactive and opportunistic rather than strategic (Quayle, 2002; Sadowski et al., 2002). There is little evidence of business strategy driving Internet adoption among SMEs; however, strategic commitment is critical in Singaporean SMEs (Kowtha & Choon, 2001). Indeed, Internet adoption is faster when SMEs recognize a business need (Kendall et al., 2001).

In common with most large businesses, SMEs have embraced the use of e-mail (Poon & Swatman, 1999), with 90% of SMEs using it regularly a year after its introduction to the business (Chapman et al., 2000). There is evidence that many have also developed brochureware Web sites. Very few SMEs have taken the next step to integrate their Web sites with their back-office systems. While many see value in e-mail and Web sites, there is scant evi-

dence of decisions to invest in internal networks or e-business systems (Keindl, 2000; Santarelli & D'Alti, 2003).

INFLUENCING FACTORS

One Internet adoption model (Mehrtens et al., 2001) suggests that there are three main factors that influence SMEs' decisions: perceived benefits, organizational readiness, and external pressures. There are three aspects to perceived benefit. First, efficiency benefits arise from improved communication using e-mail. Second, effectiveness benefits are obtained from the ability to gather research and competitor information. Both of these benefits also are identified by Poon (2000). Third, use of the Internet presents a modern image and improves SME promotion.

Organizational readiness for Internet adoption is personified in the SME owner. SMEs do not see Internet adoption as an IT issue but as a business one. SMEs that are attracted to Internet-based commerce tend to be more entrepreneurial, risk takers, innovative, and, invariably, creative (Poon & Swatman, 1999). A second organizational readiness factor is the requirement for SMEs to have adequate IS in place to access the Internet (Mehrtens et al., 2001).

The final factor — external pressure — is primarily from customers, although suppliers and employees also are influencing factors. While Poon (2000) recognizes that customer pressure is influential, there is evidence that a lack of customer use is an inhibitor, particularly of e-mail (Sillence et al., 1998).

A study of e-business adopters and non-adopters in Chile finds organizational readiness the most important factor in the decision to adopt. Organizational readiness

implies adequate technological and financial resources to enable e-business adoption. The effectiveness perceived benefit of managerial productivity is next important, with external pressure third (Grandon & Pearson, 2004).

DRIVERS AND INHIBITORS OF E-BUSINESS IN SMES

Perceived benefit is identified previously as a key driver for SME e-business adoption. Efficiency benefits include reducing operating costs, including transaction costs involved in sales and purchasing. Effectiveness benefits include improved market intelligence and ability to identify suppliers for product development purposes through the Internet. Additionally, e-business is seen as improving trading relationships. Image is important for two reasons. First, it helps maintain market share, and second, it helps to increase it. Improved customer service is identified as a key driver by most researchers, not merely as an external pressure but also in improved effectiveness; for example, in increased service delivery, such as dispatch of goods and online support. Table 1 summarizes the drivers.

For many SMEs, failure to plan the introduction and exploitation of new technology stems from management limitations (Klein & Quelch, 1997; Premkumar & Roberts, 1999). One issue for many SMEs is that they already have invested heavily in communication and data exchange systems with their major customers. For example, many SMEs have invested in EDI, and their current dilemma is whether to fulfill customer demands to move to Internet-based systems. This in part is due to SMEs' concerns about e-commerce that inhibit future development (Van Akkeren & Cavaye, 2000).

Table 1. Drivers for Internet adoption in SMEs

Driver	Source
Reduced operating costs	Standing et al. (2003); Quayle and Christiansen (2004); Quayle (2002); Kendall et al. (2001); Riemenschneider et al. (2003)
Sales and purchasing cost reduction	Quayle and Christiansen (2004); Jeffcoate et al. (2004); Tse and Soufani (2003); Riemenschneider et al. (2003)
Improved range and quality of services to customers	Quayle and Christiansen (2004); Jeffcoate et al. (2004); Tse and Soufani (2003); Mehrtens et al. (2001); Teo and Pian (2003); Sadowski et al. (2002); Santarelli and D'Altri (2003); Quayle (2002); Daniel and Grimshaw (2002); Riemenschneider et al. (2003)
Increased speed in goods dispatch	Tse and Soufani (2003)
Finding suppliers	Dandridge and Levenburg (2000); Teo and Pian (2003); Santarelli and D'Altri (2003)
Avoiding loss of market share	Santarelli and D'Altri (2003); Kendall et al. (2001); Riemenschneider et al. (2003)
Increase market share	Standing et al. (2003); Quayle and Christiansen (2004); Daniel and Grimshaw (2002); Kendall et al. (2001)
Market intelligence	Quayle and Christiansen (2004); Jeffcoate et al. (2004); Mehrtens et al. (2001)
Improved trading relationships	Quayle and Christiansen (2004); Mehrtens et al. (2001)

Table 2. E-business inhibitors

Inhibitor		Source
Cost	Implementation costs	Santarelli and D'Altri (2003); Kendall et al. (2001); Grandon and Pearson (2004); Van Akkeren and Cavaye (2000); Lawson et al. (2003)
	Limited financial resources	Sharma et al. (2004); Chapman et al. (2000); Riemenschneider et al. (2003)
	Need for immediate return on investment	Van Akkeren and Cavaye (2000)
Security	Concerns about confidentiality	Santarelli and D'Altri (2003); Kendall et al. (2001); Lawson et al. (2003)
	Fear of fraud	Van Akkeren and Cavaye (2000)
Management	Insufficient time spent on planning	Bianchi and Bivona (2002); Grandon and Pearson (2004)
	Insufficient knowledge or experience of IS	Klein and Quelch (1997); Premkumar and Roberts (1999); Zhu et al. (2003); Sharma et al. (2004); Kowtha and Choon (2001)
	Inexperienced owner	Van Akkeren and Cavaye (2000); Klein and Quelch (1997); Premkumar and Roberts (1999)
Technology	Complexity requiring new skills	Kowtha and Choon (2001); Van Akkeren and Cavaye (2000); Riemenschneider et al. (2003)
	Existing IS limiting future development	Van Akkeren and Cavaye (2000); Zhu et al. (2003)
	Lack of trust in external IS suppliers	Chapman et al. (2000)
	Limited in-house IS skills	Santarelli and D'Altri (2003); Kendall et al. (2001); Poon & Swatman (1999); Sharma et al. (2004); Chapman et al. (2000); Lawson, et al. (2003); Riemenschneider et al. (2003)

Table 2 summarizes the factors inhibiting e-business adoption in SMEs.

Thus, a range of issues may affect SMEs' decisions to invest in e-business and to take advantage of future opportu-

nities. This paper considers whether these factors affect all SMEs or if strategic intent acts as a moderator of the drivers and inhibitors.

Table 3. Dimensions of analysis for assessing strategic intent and e-business

Dimension	Characteristics	Description
Industry Sector	Manufacturing	
	Wholesale/Retail	
	Business Services	
Strategic Intent	Market Penetration	Selling existing products into existing markets
	Product Development	Selling new products into existing markets
	Market Development	Selling existing products into new markets
	Diversification	Selling new products into new markets

INFLUENCE OF INDUSTRY SECTOR

There is little evidence of a sector affecting Internet adoption or the development of e-business in SMEs. In earlier research on IS adoption in SMEs, industrial sector is not identified as an influence (Levy & Powell, 2000). Yet, there is little research in this area.

RESEARCH QUESTIONS

This research centers on three questions:

- Does strategic intent drive e-business adoption in SMEs, and is it a factor of market position or product innovation?
- Is this consistent across sectors, given research suggesting that sector is not a determining factor in ICT adoption (Levy et al., 2001)?
- How is strategic intent and industry adoption influenced by the enablers and inhibitors of e-business adoption?

RESEARCH APPROACH

This research is designed to capture data about the strategic intent of SMEs, as defined by the Ansoff framework. Additionally, data about the current and future use of the Internet is collected. The survey asks SMEs about the importance of e-busi-

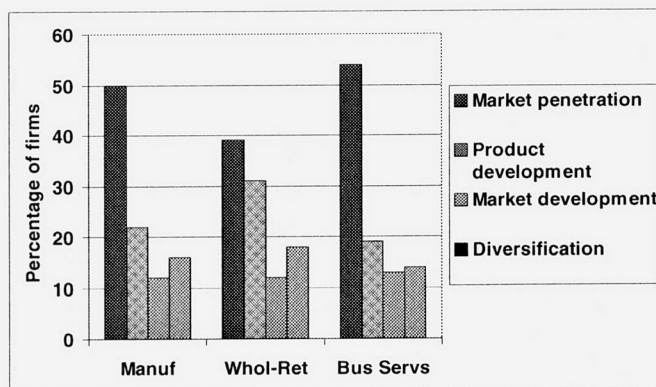
ness and what they consider to be the drivers and inhibitors.

The survey is part of a major study into e-business undertaken throughout the UK West Midlands, a region regarded by the European Union as in need of development. The data were collected by telephone with the respondent being the SME owner who is knowledgeable about strategic intent.

A total of 1,403 firms responded. This was reduced to 354 usable responses here for a number of reasons. Some responses were obtained from firms that could not be considered to be SMEs. They often were small business units operating within larger organizations (the 136 responses from the Education and Health Sectors were examples of this). Also excluded were micro firms that had no intention of using technology to grow their business, those that did not use PCs, and those sectors that displayed little evidence of strategic intent. For example, the construction industry was removed from the sample, as 80% of the firms aimed to stay within existing markets and existing products. In contrast, other sectors had over 50% of SMEs moving toward new products and new markets.

For some of the more detailed analyses on drivers and inhibitors for e-business, firms that did not answer all questions were

Figure 2. Strategic intent by industry



excluded. This is reflected in the fewer firms shown in Tables 7a and 7b.

DIMENSIONS OF ANALYSIS

The two dimensions used in the analysis are shown in Table 3.

Industry sector differences are investigated through manufacturing, wholesale/retail, and business services sectors, which represent the main categories within the survey dataset. The differences in the sectors also demonstrate key differences, as manufacturing SMEs are often dependent upon major customers, while the other two sectors are more likely to have a broader range of customers.

Strategic intent characteristics are defined by Ansoff (1965) and discussed earlier. SMEs that are content to stay with existing markets and products are likely to take a more conservative strategic stance than those who are either selling new products into existing markets or selling existing products into new markets. The most radical strategic stance is seen in those SMEs aiming to diversify by selling new products into new markets.

STRATEGIC INTENT PATTERNS

Respondents were asked where they expected the most growth — in current or new products/services — and whether the growth would be in new or existing markets in order to assess strategic intent. The market penetration category accounts for 172 (49%) of firms; product development for 82 (23%), and market development for 43 (12%), while diversification accounts for 56 firms (16%). Figure 2 presents the strategic intent by industry of the case firms.

Many SMEs start as a result of identifying a market niche for one or two products with which the owner is familiar, has knowledge to develop, and possibly has initial contracts. Many stay within the comfort zone of their knowledge and experience, preferring not to grow beyond a certain size. Hence, market penetration is their strategy of choice.

The wholesale/retail sector provides a slightly different pattern of strategic intent to the other sectors (Figure 2), perhaps reflecting market volatility, as this market requires new products more frequently. A further reason may relate to the

Table 4. Importance of the Internet for growth by sector and strategic intent

Strategic Intent	Sector	Unimportant (%)	Marginally Important (%)	Moderately Important (%)	Very Important (%)
Market Penetration	Manufacturing	25	28	21	25
	Wholesale/Retail	21	29	21	29
	Business Services	6	24	43	27
	Average	17	27	30	27
Product Development	Manufacturing	7	28	41	24
	Wholesale/Retail	13	23	43	20
	Business Services	4	17	39	35
	Average	8	23	41	26
Market Development	Manufacturing	19	44	19	19
	Wholesale/Retail	0	58	33	8
	Business Services	20	13	20	47
	Average	14	37	23	26
Diversification	Manufacturing	24	38	29	9
	Wholesale/Retail	22	28	28	22
	Business Services	6	18	18	59
	Average	18	29	25	30

SME-customer's relationship. As many manufacturers are tied in with customers, their products are defined more clearly by a preferred supplier relationship. Given that the strategic intent of most firms is limited, it is likely that the main focus of ICT will be on systems that reduce costs. Owners are less likely to invest for future growth.

CURRENT USE OF THE INTERNET

Eighty-six percent of surveyed SMEs have Internet access, with little industry variation; all use e-mail. Forty percent of these firms use e-mail internally and externally, suggesting that there is some recognition of Internet value in managing internal efficiencies as well as external communication. Fifty-three percent of the SMEs have a marketing Web site, with 56% of these updating it at least once a quarter. While there is little cross-sector difference, strategic intent does appear to drive development with over 63% of the

firms that are looking to introduce new products to existing markets having marketing Web sites.

IMPORTANCE OF THE INTERNET IN ACHIEVING BUSINESS GROWTH

SMEs were asked about the importance of the Internet in achieving business growth over the next year and the responses were analyzed by strategic intent and business sector jointly (Table 4).

Some important distinctions emerge: firms in business services show a clear and marked gradation across strategic intent types. While 27% of market penetration business services see the Internet as very important, this increases to 35% for those whose strategic intent is toward product development; to 47% in market development; and to 59% in the diversification category. This may reflect new opportunities emerging because of the Internet. Delivery of products and services and develop-

Table 5. Importance of e-business by strategic intent

Strategic Intent	Essential (%)	Very Important (%)	Both (%)
Market Penetration	23	17	40
Product Development	17	38	55
Market Development	23	28	51
Diversification	29	25	54

ment of new services may be more likely in business services.

Somewhat counter-intuitively, the reverse is found for manufacturers; while 25% of market penetration manufacturers view the Internet as very important, this declines to 24% in the product development category; to 19% in market development; and to 9% in diversification. This might reflect the well developed relationships with customers driving Internet adoption for market penetration, while new markets are found in other ways.

The wholesale and retail sector shows that more market penetration firms consider the Internet as important for strategic growth. Market development firms show little interest in the Internet. It is surprising that the Internet is not seen as a distribution method for products, although it may reflect the type of products for which the Internet

is not a suitable distribution mechanism. Alternatively, it may reflect a desire not to trade outside a limited geographic area.

What is striking is that firms with a product development focus see the Internet as considerably more important than any of the other strategic intent categories.

IMPORTANCE OF E-BUSINESS

SMEs then were asked about their attitude toward e-business and its importance in three years. Fifty one percent of surveyed SMEs regarded e-business as essential or very important. The cross-sector patterns are similar. E-business is less important for manufacturers than for the other sectors, with only 45% of SMEs considering it either essential or very important. One explanation may be the perception that e-business is about consumer trad-

Figure 3. Importance of e-business by sector

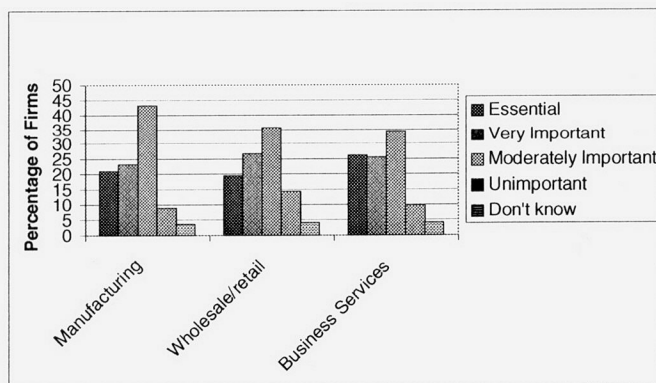


Table 6a. Mean score by strategic intent for e-business drivers

Strategic Intentions		E-Business Drivers							
		D1	D2	D3	D4	D5	D6	D7	D8
Market Penetration	Mean	2.93	2.76	2.61	2.81	2.69	2.69	2.73	2.97
	N	153	153	153	153	153	153	153	153
Product Development	Mean	2.99	2.93	2.89	3.07	3.00	3.00	3.10	3.26
	N	72	72	72	72	72	72	72	72
Market Development	Mean	2.75	2.65	2.55	2.73	2.33	2.55	2.63	2.98
	N	40	40	40	40	40	40	40	40
Diversification	Mean	3.21	2.92	2.90	3.00	2.92	2.77	3.04	3.19
	N	52	52	52	52	52	52	52	52
All	Mean	2.97	2.81	2.71	2.89	2.75	2.76	2.85	3.07
	N	317	317	317	317	317	317	317	317

ing rather than supporting customer requirements through business-to-business exchanges. This is somewhat surprising, given the emphasis placed on the importance of EDI by many major manufacturers. The other sectors, however, are only slightly more optimistic, suggesting that there is still a need to educate owners about future Internet potential (Figure 3).

Table 5 shows analysis by strategic intent of firms that see e-business as essential or very important.

Clearly, firms that are most strategically conservative are less likely to see e-business as essential or very important. For example, manufacturers in the market penetration category are least likely to see it as essential or very important (34%). Interestingly, firms that intend to develop new products are more likely to see the future importance of e-business. This suggests that, contrary to current thinking, the use of technology is triggered more by a new product orientation in firms than by a new market orientation. For example, business services firms in the diversification category are most likely to see e-business as essential or very important (65%). Thus, while many SMEs can be criticized for having a too one-sided

perspective on strategic development, there is a need to encourage SMEs to take a more simultaneous view of new product development *and* new market development.

DRIVERS FOR E-BUSINESS

SMEs were asked to indicate the importance of nine drivers in encouraging them to use e-business. The respondents were asked to indicate the importance of each of the drivers on a five-point scale ranging from unimportant (score 1) to very important (score 5). The drivers are:

- D1: Customer demand
- D2: Reduced operating costs
- D3: Reduction in costs associated with sales and purchasing
- D4: Improve the range and quality of services that can be offered to customers online
- D5: Increase in speed of dispatch of goods
- D6: Increase in speed by which supplies are obtained
- D7: Avoiding loss of market share to competitors already using e-business
- D8: Increase market share

Figure 4. Mean scores by strategic intent of e-business drivers

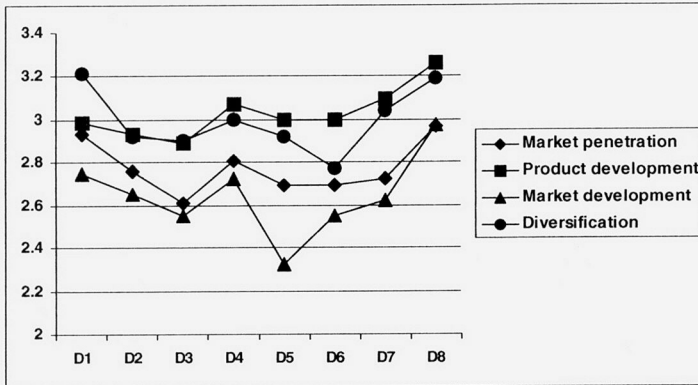


Table 6a shows the mean score of firms in each strategic intent category on each of the nine drivers. The data are shown graphically in Figure 4.

The analysis reveals that there are systematic differences between the four strategic intent categories. Firms that are categorised as market development and market penetration tend to record lower importance scores on all of the drivers, compared to firms that are contained in the diversification and product development categories. While firms that are contained in the market development category score lowest on all but one of our driver measures (D8: As a means to gain new customers or increase market share), firms in

the product development category scored highest on five of the eight measures (D4 to D8 in Figure 4). Yet, the differences between the mean scores on the driver measures, following an analysis of variance with appropriate post hoc tests, are not statistically significant at the 5% level. Consequently, while systematic differences between the four strategic intent categories are found, further research is needed to be able to confirm the findings here.

Table 6b shows the mean score of firms on each of the nine drivers by industry sector. The difference in responses between Table 6a and Table 6b is due to missing values in one firm.

Table 6b. Mean score by industry for e-business drivers

Sector		D1	D2	D3	D4	D5	D6	D7	D8
Manufacturing	Mean	3.09	2.75	2.68	2.79	2.56	2.74	2.74	3.05
	N	122	122	122	122	122	122	122	122
Wholesale/Retail	Mean	2.90	2.82	2.77	2.83	2.94	2.85	3.0	3.11
	N	87	87	87	87	87	87	87	87
Business Services	Mean	2.90	2.88	2.71	3.06	2.83	2.71	2.86	3.06
	N	109	109	109	109	109	109	109	109
Total	Mean	2.97	2.81	2.71	2.89	2.75	2.76	2.85	3.07
	N	318	318	318	318	318	318	318	318

Table 7. Mean score for e-business drivers by industry and strategic intent

Sector	Strategic Intentions		1	2	3	4	5	6	7	8
	Manufacturing	Market Penetration	Mean	3.21	2.66	2.57	2.70	2.61	2.75	2.61
N			61	61	61	61	61	61	61	61
Product Development		Mean	2.85	2.88	2.88	2.73	2.58	2.65	2.96	3.12
		N	26	26	26	26	26	26	26	26
Market Development		Mean	2.87	2.60	2.40	2.87	2.27	2.60	2.53	3.07
		N	15	15	15	15	15	15	15	15
Diversification		Mean	3.16	2.95	2.95	3.05	2.58	2.89	2.95	3.32
		N	19	19	19	19	19	19	19	19
Total		Mean	3.08	2.74	2.68	2.79	2.55	2.74	2.73	3.05
		N	121	121	121	121	121	121	121	121
Wholesale/Retail	Market Penetration	Mean	2.75	2.78	2.66	2.75	2.88	2.75	2.97	3.06
		N	32	32	32	32	32	32	32	32
	Product Development	Mean	3.00	2.92	2.88	3.08	3.27	3.35	3.12	3.27
		N	26	26	26	26	26	26	26	26
	Market Development	Mean	2.33	2.17	2.50	2.17	2.17	2.25	2.33	2.50
		N	12	12	12	12	12	12	12	12
	Diversification	Mean	3.41	3.18	3.00	3.06	3.12	2.71	3.35	3.41
		N	17	17	17	17	17	17	17	17
	Total	Mean	2.90	2.82	2.77	2.83	2.94	2.85	3.00	3.11
		N	87	87	87	87	87	87	87	87
Business Services	Market Penetration	Mean	2.75	2.85	2.62	2.95	2.68	2.60	2.72	2.95
		N	60	60	60	60	60	60	60	60
	Product Development	Mean	3.15	3.00	2.90	3.50	3.20	3.00	3.25	3.45
		N	20	20	20	20	20	20	20	20
	Market Development	Mean	3.00	3.15	2.77	3.08	2.54	2.77	3.00	3.31
		N	13	13	13	13	13	13	13	13
	Diversification	Mean	3.06	2.62	2.75	2.88	3.13	2.69	2.81	2.81
		N	16	16	16	16	16	16	16	16
	Total	Mean	2.90	2.88	2.71	3.06	2.83	2.71	2.86	3.06
		N	109	109	109	109	109	109	109	109
	N	317	317	317	317	317	317	317	317	317

The analysis by industry sector does not reveal any significant differences between the impacts of the set of drivers. This confirms earlier research that industry sector is not a factor in e-business adoption decisions. Table 7 shows an analysis by both industry sector and strategic intent.

An analysis of Table 7 reveals that the different drivers have differing effects on the categories of firms. Customer push/demand is highest for manufacturers in the market penetration, product development,

and market development categories, but particularly pronounced for wholesale/retailers that are looking to diversify.

Reducing purchasing costs and operating costs are most prevalent for firms in the product development category, perhaps indicating a heightened need to reduce the cost-base of products to win market share for new products in existing markets. The need to use e-business to reduce purchasing and operating costs is particularly prevalent among market penetration

Table 8. Mean scores for inhibitors for e-business

Inhibitor	Mean Score
Concerns about confidentiality	3.62
Obtaining authorization to clear cards	3.59
Concern about the risk of fraud	3.56
Technology costs	3.26
Poor public telecommunications infrastructure	3.08
E-commerce development offers no tangible benefits	2.92
E-commerce development is not relevant	2.82
IT skills shortages among workforce	2.79
Lack of management's willingness to adopt IT	2.70

wholesale/retailers; again, there may be a strong emphasis on the need to reduce costs to continue to survive with existing products in existing markets. Firms looking to develop new markets seem less concerned about the use of e-business to reduce costs; perhaps this might arise after new markets are penetrated and firms need to compete more on cost than on novelty and innovation.

Improving the range and quality of services delivered for an online item is most pronounced in business services across all strategic intent categories and in wholesalers/retailers looking to diversify.

The speed of a dispatch driver is strongest for business services in the product development category and for diversifying wholesalers. The increased speed of supply items is most prevalent in the product development strategic intent category, as is the concern about the loss of market share and winning new customers. Clearly, the product development category emerges as a class of business with a specific and pronounced set of needs and concerns about the move to e-business. Firms in this category have a great interest in e-business, given their need to:

- Reduce operating costs and costs associated with sales and purchasing;
- Increase speed in doing business (important in generating customer satisfaction/lock-in);
- Win new customers; and
- Avoid losing their existing customer base.

INHIBITORS OF E-BUSINESS ADOPTION

Respondents are asked whether and to what degree they agree with nine statements that may discourage them from adopting e-business. The statements involve:

- I1: Concerns about confidentiality
- I2: Concerns about the risk of fraud
- I3: Technology costs associated with e-business development being too high
- I4: Poor public telecommunications infrastructure inhibiting technological development
- I5: Obtaining authorization for credit card clearance
- I6: IT skills shortages among the workforce

Table 9. E-business inhibitors by sector and strategic intent

		I1	I2	I3	I4	I5	I6	I7	I8	I9
Strategic Intentions		Net agree	Net agree	Net agree	Net agree	Net agree	Net agree	Net agree	Net agree	Net agree
Market Penetration	Manufacturing	29	33	0	-13	-1	-51	-33	-16	-28
	Wholesale/Retail	3	-3	-31	-22	-19	-19	-44	-16	-31
	Business Services	37	25	13	-13	-20	-28	-33	-25	-20
	Average	27	22	-1	-15	-19	-35	-35	-20	-25
Product Development	Manufacturing	35	31	4	-15	-31	-12	-35	-19	-19
	Wholesale/Retail	-8	4	0	-4	-31	-23	-42	-23	-35
	Business Services	-10	-5	-4	-20	-30	-15	-40	-15	10
	Average	7	11	-10	-12	-31	-17	-39	-19	-17
Market Development	Manufacturing	-7	-13	0	-13	-13	-33	-33	-27	-20
	Wholesale/Retail	58	0	-8	-50	-42	-58	-58	-50	-33
	Business Services	62	54	38	8	15	-38	-54	-61	-54
	Average	35	12	10	-17	-12	-42	-47	-45	-35
Diversification	Manufacturing	37	58	-11	-5	-11	-5	0	-5	-5
	Wholesale/Retail	29	29	23	-24	-6	-41	-35	-23	-24
	Business Services	44	37	12	12	19	-19	-19	-25	-12
	Average	36	42	8	-6	0.1	-21	-17	-17	-13
Overall		25	22	0	-13	-15	-29	-34	-23	-23

- 17: Lack of management's willingness to adopt IT as an obstacle to further e-business development
- 18: Further e-business development offers no tangible benefits
- 19: Further e-business development is not relevant

The overall rating of the nine inhibitors is shown in Table 8.

This confirms findings in the literature that concerns about confidentiality, fraud, and technology costs are inhibitors to investing in e-business. Additionally, the process of obtaining authorization to clear cards is a major inhibitor. Lack of IT skills and lack of management willingness to adopt are not seen as inhibitors. This suggests that SME managers are aware of the potential from e-business but need to be convinced of its benefits to their firm.

Table 9 enables differences between industry sectors and strategic intentions to

be explored for potential inhibitors to e-business. Respondents are offered five categories of responses, ranging from totally agree (score 5) to totally disagree (score 1) for each of the nine inhibitors. A *net agree* score is calculated for each category of firm on each factor. The net score adds together those agreeing or strongly agreeing and subtracts those disagreeing or strongly disagreeing. Thus, the higher the number, the more respondents agree with the statement.

There is a net positive view that firms are concerned about confidentiality and fraud over the Internet, and these views are most pronounced among diversifying SMEs. The *net agree* score for confidentiality and fraud in firms in the market development category is 36 and 42, respectively, which is higher than any other strategic intent category. There are particular concerns about confidentiality and fraud among business service SMEs in the mar-

ket development, diversify and market penetration categories, together with wholesale/retailers in market development (confidentiality only). Business service firms in the product development category seem less concerned about confidentiality and fraud than business service firms in other categories.

As to technology costs being excessive, the jury is still out. Although there are concerns about technology costs in the business services market development and the wholesale/retail diversify categories, this is countered by low scores in the wholesale/retail market penetration and the business services product development categories. Concerns about credit card clearance do not seem to be an issue except in the business services diversify and market development categories, the only two categories to record a positive net agree score.

A skill shortage measure gets a strong negative score across the board. Skill shortages are more evident in firms that wish to develop new products for existing markets or develop new markets and new products, suggesting that skills may be more of an issue where the objective is to develop new products. Manufacturers in the diversify category are more likely to experience skills shortages than all other classes of firm, followed by manufacturers in the product development category.

Management's unwillingness achieves a high negative net agree score. The diversify manufacturers are radically different, as it is the only sector to reveal any significant negativity among managers. Both the *not relevant* and *no benefits* measures have negative scores across the board, but negativity is less pronounced in manufacturing diversification.

DISCUSSION

Three research questions are posed in this paper. The first question focused on whether strategic intent drives e-business adoption and whether it is a function of market position or product innovation. This research shows that those SMEs remaining in their existing markets are the least likely to invest, primarily due to the Internet not being seen as necessary for growth and less interest in winning new customers. The main finding here is that it is more product innovation than market penetration that drives e-business. This counters current thinking that market penetration is more critical.

The second research question is whether industry sector is a determining factor in e-business adoption. Just over half of the SMEs in all sectors believe that e-business is very important or essential. There is some sectoral difference when firms are asked the importance of the Internet for growth. More than 35% of business service firms see the Internet as very important, compared to just over 20% for manufacturing and wholesale/retail. More research is required to confirm whether there is industry differentiation and the nature of that differentiation.

The final research question asked whether the enablers and inhibitors of e-business adoption varied by strategic intent or industry. There is little differentiation between industry sectors or strategic intent perspectives with customer demand; increasing market share, avoiding loss of market share, and improving online services to customers are seen as vital to most firms. These findings concur with existing research. This suggests that SMEs believe that their market niches are their strengths, and these are where they should continue

Figure 5. Focus-Dominance model (Levy et al., 2001)

Customer Dominance	Low	Coordination	Repositioning
	High	Efficiency	Collaboration
		Cost	Value Added
		Strategic Focus	

to compete. The main difference is in the wholesale/retail sector, where being able to dispatch goods more quickly is seen as the main driver. This may indicate that this is a more highly competitive market and that firms need to be efficient to survive. Other efficiency factors generally are seen as less important. The key difference in strategic intent is that those firms pushing new products into existing markets perceive the need to improve online services to customers as of lesser importance than reducing operating costs.

Turning to the inhibitors concerns about confidentiality, fraud, and the high cost of e-business are the main deterrents across all sectors and strategic intent groups. This is similar to findings in the literature. In contrast to the literature, most SMEs here do not believe that limited IT skills in the workforce nor management unwillingness are issues except in more innovative firms looking to develop new products in new markets. This might be due to firm age and existing skills bases. SMEs also believe to a lesser degree that e-business is both relevant and may offer some benefit to the firm.

Thus, it appears that pressure to adopt is likely to be driven by external factors rather than internal ones. This may go some way to explain the cautious approach of SMEs' Internet adoption; given their re-

source constraints, they may be waiting for signs from the market that the investment is required.

Management Perspective

There is evidence here that strategic intent affects Internet adoption and decisions to invest in e-business in SMEs. This may be better understood by not considering SMEs as a homogeneous group, which much of the literature does. There are various ways in which SMEs may be classified, but a useful starting point is to consider SME attitude to ICT investment. Levy et al. (2001) identify four different scenarios, followed by SMEs toward ICT investment. These scenarios are demonstrated in the Focus-Dominance model (Figure 5).

The different scenarios clearly suggest separate strategic intents. The efficiency scenario is found when SMEs are starting up. There are some SMEs that are in business for the lifestyle advantages for their owners (Hay & Kamshad, 1994). Thus, they are interested only in selling their current products into existing markets, and market penetration is the espoused strategic intent. Their use of ICT mirrors this. These organizations usually have simple stand-alone systems, possibly with a simple Web site (Levy et al., 2001). This research shows that the main driver for

e-business for these firms is customer demand. While customer demand and improving online services are also important, they are considerably less so. The lack of resources in most SMEs is likely to be more prevalent in this group and limits e-business adoption. Inhibitors are similar to other categories with confidentiality and fraud being most important. Thus, it is the drivers that are likely to be the main factors in decisions to invest. What is clear is that the market is not yet demanding such investment.

The coordination scenario is found as businesses grow. The businesses here increasingly are looking to sell their products into new markets; in other words, market development. They are looking for steady growth for their existing products. They utilize more sophisticated information systems to allow them to do this, including the development of intranets and often externally focused e-mail to work with customers (Levy et al., 2003). The e-business driver and inhibitor profile is similar to market penetration. The main difference is that these firms are often larger and have more structure; hence, the stronger feeling that management's unwillingness, skill shortages, and lack of benefits are more strongly disputed. There is, again, little evidence of market demand for investment in e-business.

Product development is the focus of the collaboration scenario. This group of SMEs usually is aligned closely with a few major customers and develops new products to support their requirements. These SMEs are looking for growth but through the development of the customer relationship. The information systems here include the use of electronic data interchange and often extranets. Winning new customers is

seen as critical for this group, with customer demand and avoiding loss of market share as important. Many of these firms work closely with a small group of customers, where the loss of one can be catastrophic. The search for a replacement occupies a lot of time. Thus, customer demand is taken very seriously and is often a requirement to maintain preferred supplier status. Reduced operating costs are important to this group of firms to a far greater degree than others, as most of their customers are large firms that can exert a lot of pressure. For this group, inhibitors are less of an issue.

While the SMEs in the coordination and collaboration quadrants often are looking for steady growth, the final group in the repositioning scenario sees diversification as the way forward as they are looking for rapid growth. This often means different delivery means of products but also developing new product to satisfy their markets. This group is likely to put ICT at the center of the business growth strategy. Interestingly, customer demand is high in this group, while winning new customers is lower. This is surprising, as it might be expected that diversification is about gaining a broader customer base. It might be that these firms are responding to what they see as customer demand by changing their business. Again, confidentiality and fraud are seen as important inhibitors that may not be surprising, as these firms are taking a risk in diversification.

CONCLUSION

Using survey data from SMEs, this paper investigates e-business use and drivers by posing three research questions: Does strategic intent drive e-business adoption, and is it a factor of market position or prod-

uct innovation? Is this consistent across sectors? How is strategic intent and industry adoption influenced by the enablers and inhibitors of e-business adoption? The research demonstrates that strategic intent influences decisions to invest in e-business. Those SMEs remaining in their existing markets are the least likely to invest, primarily due to the Internet not being seen as necessary for growth. Product innovation rather than market penetration drives e-business. This is explored through e-business drivers and inhibitors that provide insights into uses. Finally, a model of SME ICT investment that does not treat SMEs as a homogeneous group is used to understand further the processes involved here.

REFERENCES

- Angehrn, A. (1997). Designing mature Internet business strategies. *European Management Journal*, 15(4), 361-369.
- Ansoff, I. (1965). *Corporate strategy*. McGraw Hill.
- Bianchi, C. & Bivona, E. (2002). Opportunities and pitfalls related to e-commerce strategies in small-medium firms: A systems dynamics approach. *Systems Dynamics Review*, 18(3), 403-429.
- Chapman, P., James-Moore, M., Szczygiel, M., & Thompson, D. (2000). Building Internet capabilities in SMEs. *Logistics Information Management*, 13(6), 353-360.
- Currie, W. (2000). *The global information society*. Chichester, UK: J. Wiley and Sons.
- Dandridge, T. & Levenburg, N. (2000). Hi-tech potential. *International Small Business Journal*, 18(2), 81-121.
- Daniel, E. & Grimshaw, D. (2002). An exploratory comparison of electronic commerce adoption in large and small enterprises. *Journal of Information Technology*, 17, 133-147.
- Evans, R. (2002). E-commerce, competitiveness and local and regional governance in greater
- Feeny, D. (2000). E-opportunity: The strategic marketing perspective. In L. Willcocks, C. Sauer and Associates (Eds.), *Moving to e-business*. Random House.
- Grandon, E. & Pearson, J. (2004). E-commerce adoption: Perceptions of manager/owners of small and medium sized firms in Chile. *CAIS*, 13, 81-102.
- Hay, M. & Kamshad, K. (1994). Small firm growth: Intentions, implementation and impediments. *Business Strategy Review*, 5(3), 49-68.
- Jeffcoate, J., Chappell, C., & Feindt, S. (2004). Assessing the impact of e-commerce on SMEs in value chains: A qualitative approach. In Al-Qirim (Ed.), *Electronic commerce in small to medium-sized enterprises: Frameworks, issues and implications*. Hershey, PA: Idea Group Publishing.
- Keindl, B. (2000). Competitive dynamics and new business models for SMEs in the virtual marketplace. *Journal of Developmental Entrepreneurship*, 5(1), 73-85.
- Kendall, J., Tung, L., Chua, K., Ng, D., & Tan, S. (2001). Receptivity of Singapore's SMEs to electronic commerce adoption. *Journal of Strategic Information Systems*, 10, 223-242.
- Klein, L.R. & Quelch, J.A. (1997). Business-to-business market making on the Internet. *International Marketing Review*, 14(5), 345-361.
- Kowtha, N. & Choon, T. (2001). Determinants of Web site development: A study of electronic commerce in Singapore.

- Information and Management*, 39, 227-242.
- Lawson, R., Alcock, C., Cooper, J., & Burgess, L. (2003). Factors affecting adoption of electronic commerce technologies. *Journal of Small Business and Enterprise Development*, 10(3), 265-276.
- Levy, M. & Powell, P. (2000). Information systems strategy in SMEs — An organizational perspective. *Journal of Strategic Information Systems*, 9(1), 63-84.
- Levy, M. & Powell, P. (2003). SME Internet adoption. *Electronic Markets* 13(2).
- Levy, M., Powell, P., & Yetton, P. (2001). SMEs: Aligning IS and the strategic context. *Journal of Information Technology*, 16, 133-144.
- Lunati, M. (2000). SMEs and electronic commerce: An overview. OECD, Directorate for Science, Technology and Industry Committee, DST/IND/PME, (2000)11.
- Manchester and Merseyside: A Preliminary Assessment. *Urban Studies*, 39(5/6), 947-975.
- Mehrtens, J., Cragg, P., & Mills, A. (2001). A model of Internet adoption by SMEs. *Information and Management*, 39, 165-176.
- Poon, S. (2000). Business environment and Internet commerce benefit: Small business perspective. *European Journal of Information Systems*, 9, 72-81.
- Poon, S. & Swatman, P. (1999). An exploratory study of small business Internet commerce issues. *Information and Management*, 35, 9-18.
- Premkumar, G. & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *Omega, International Journal of Management Science*, 27, 467-484.
- Quayle, M. (2002). E-commerce: The challenge for UK SMEs in 21st century. *International Journal of Operations and Production Management*, 22(10), 1148-1161.
- Quayle, M. & Christiansen, J. (2004.) Business issues in the 21st century. In N. Al-Qirim (Ed.), *Electronic commerce in small to medium-sized enterprises: Frameworks, issues and implications*. Hershey, PA: Idea Group Publishing.
- Riemenschneider, C., Harrison, D., & Mykytyn, P. (2003). Understanding IT adoption decisions in small business: Integrating current theories. *Information and Management*, 40, 269-285.
- Sadowski, B., Maitland, C., & van Dongen, J. (2002). Strategic use of the Internet by small and medium-sized companies: An exploratory study. *Information Economics and Policy*, 14, 75-93.
- Santarelli, E. & D'Altri, S. (2003). The diffusion of e-commerce among SMEs: Theoretical implications and empirical evidence. *Small Business Economics*, 21, 272-283.
- Sauer, C. (2000). Managing the infrastructure challenge. In L. Willcocks, C. Sauer and Associates (Eds.), *Moving to e-business*. Random House.
- Sharma, S., Wichramasinghe, N., & Gupta, J. (2004). What should SMEs do to succeed in today's knowledge-based economy. In N. Al Qirim (Ed.), *Electronic commerce in small to medium-sized enterprises: Frameworks, issues and implications*. Hershey, PA: Idea Group Publishing.
- Sillence, J., MacDonald, S., Lefang, B., & Frost, B. (1998). Email adoption, diffusion, use and impact with small firms. *International Journal of Information Management*, 18(4), 231-242.

- Standing, C., Sims, I., & Stockdale, R. (2003). Can e-marketplaces bridge the digital divide? *Organizational Information Systems In the Context of Globalization*, 339-353.
- Storey, D.J. (1994). *Understanding the small business sector*. London: Routledge.
- Teo, T. & Pian, Y. (2003). A contingency perspective on Internet adoption and competitive advantage. *European Journal of Information Systems*, 12, 78-92.
- Tse, T. & Soufani, K. (2003). Business strategies for small firms in the new economy. *J. of Small Business and Enterprise Development*, 10(3), 306-319.
- Van Akkeren, J. & Cavaye, A. (2000). Factors affecting entry-level Internet technology adoption by small firms in Australia. *Journal of Systems and Information Technology*, 3(2), 33-47.
- Willcocks, L. & Sauer, C. (2000). Moving to e-business: An introduction. In L. Willcocks, C. Sauer and Associates (Eds.), *Moving to e-business*. Random House.
- Zhu, K., Kramer, K., & Xu, S. (2003). Electronic business adoption by European firms. *European Journal of Information Systems*, 12, 251-268.

Margi Levy is a senior lecturer in information management at Warwick Business School, University of Warwick. Before becoming an academic she worked as an IS consultant with Coopers and Lybrand in W. Australia, for a number of financial and software development organizations in London. She is currently conducting research in getting value from information systems for small and medium sized enterprises, information systems strategy, e-business for SMEs, and applicability of IS theory to SMEs. She has published in a number of journals: Information and Management, Journal of Strategic Information Systems, European Journal of Information Systems, Information Resource Management Journal, International Journal of Technology Management, and Small Business Economics.

Philip Powell is the deputy dean, a professor of information management, and director of the Centre for Information Management in the School of Management at the University of Bath. He was formerly a professor of information systems, University of London, and director of the Information Systems Research Unit at Warwick Business School. He has worked and taught in Australia, Africa, the U.S., and Europe. Prior to becoming an academic he worked in insurance, accounting, and systems analysis. He is the author of five books on information systems and financial modeling. His work has appeared in more than 80 international journals and at more than 100 conferences. He is managing editor of the Information Systems Journal, book reviews editor of the Journal of Strategic Information Systems, and on a number of other journal editorial boards. He is currently president of the UK Academy for Information Systems.

Professor Les Worrall is the associate dean (research) at the University of Wolverhampton Business School, where he leads the Management Research Centre. He is a council member of the British Academy of Management and a member of the Association of Business School's Research Committee. He has published extensively on regional economic analysis and has a particular research interest in the management of information and communications technology in UK local government. Professor Worrall is a member of the editorial boards of four journals and has published extensively in several areas of applied management research. He has also conducted research and consultancy for a several "blue chip" companies and over 200 UK local authorities.