

## **A REVIEW OF e-BUSINESS IN SCOTLAND IN SMALL AND MEDIUM SIZED BUSINESSES: TRENDS AND ISSUES**

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This article examines the state of e-business in Scotland in small and medium sized businesses (SMEs). It is generally agreed (for example e-Business Watch 2004) that, despite the dot.com boom and bust, e-business is important in improving business process and promoting innovation. Significant efforts have been made at European, UK and Scottish levels to encourage the uptake of e-business amongst SMEs and some of these programmes are discussed below. However it is clear that many SMEs are not taking advantage of this apparent opportunity. 'Surveys in several countries show that SMEs have been slower to adopt e-commerce than their larger counterparts' (Drew 2003). Wagner et al (2003) suggest that 'despite technology facilitating improved business practices in terms of developing electronic markets, electronic data interchange and Internet commerce, a number of SMEs have not taken advantage of this new mode of carrying out business'.

This article seeks to understand what is happening with e-business in Scottish SMEs. It also aims to identify and examine patterns and trends and explore what explanations can be developed. Specifically, it seeks to examine the following:

- What have the support agencies been doing to assist SMEs?
- What is the current state of e-business in Scottish SMEs?

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- What explanations can be given for this position?
- Does this mean Scotland is different?

SME adoption issues have been examined by several authors worldwide, eg Kendall et al (2001). In Scotland, SME adoption issues have been examined, for example, by Fillis et al (2003), Wagner et al (2003) and Cruickshank and McLeod (2004). This article offers a better understanding of the reasons behind SMEs' current use of e-business. Patterns and trends are identified and reasons proposed as to why some SMEs have progressed further than others. In particular, a better understanding is gained of both ends of the e-business adoption scale, namely SMEs newly adopting e-business and SMEs making sophisticated use of e-business. This leads to an evaluation of Scotland's position which is then contextualised in the UK and Europe.

## **METHODS**

The methods comprise a combination of secondary and primary research. Secondary research involves considerable use of large scale survey data and reports. Literature provides a theoretical framework to report on the use and application of e-business. While in theory, our objectives might be tackled using only secondary sources and literature, it was felt useful to consult certain key players. This enabled a more up-to-date position to be ascertained and the issues to be illuminated by the first hand comments.

The three key industry players were:

Mr Frank O'Donnell	Director, Scottish Enterprise e-Business Group
Dr Doug Leith	Director of Research, Business Lab
Mr Bernie Vincent	Programme Manager, eBusiness Clubs, Scotland

These are important because they are all concerned with advising on or shaping the e-business support to SMEs in Scotland. Scottish Enterprise have an established e-business team, Business Lab have undertaken several consultancy assignments relating to the uptake of e-business in Scotland and the eBusiness Clubs are run by the British Chambers of Commerce to provide information and advice to businesses. Further views were obtained from Polly Purvis, Executive Director of ScotlandIS, the trade body for Scotland's ICT industry. Margaret Keith, Office Manager, Scottish ESF Objective 3

Partnership Ltd., kindly provided some examples of European funded e-business projects in Scotland. Several Scottish SMEs, randomly selected from the European Oil & Gas Directory (FPAL 2005), were contacted to examine and illuminate a specific aspect of electronic procurement. The views of all the participants were synthesised with an analysis of the secondary data and further literature to identify patterns, trends and explanations.

In this article, e-business will be taken to mean 'any business carried out over an electronic network (exchanging data files, having a website, using other companies' websites or buying and selling goods and services online)' (Fillis et al (2004).

### **THE APPROACH OF THE SUPPORT AGENCIES IN ASSISTING SMEs**

SMEs are generally taken to mean private sector enterprises with up to 250 employees. This definition is consistent with that used by the EU, whereby an SME is an 'entity engaged in economic activity' and which 'employs fewer than 250 persons and which has an annual turnover not exceeding EUR 50 million, and/or a balance sheet total not exceeding EUR 43 million' (Official Journal of the EU 2003). The SME sector is very important to the economy of most countries. For example, in Scotland as a whole, 63% of private sector employment and 57% of private sector turnover is derived from SMEs. 99.8% of all private sector enterprises are SMEs. In a UK context, Scotland is broadly similar to comparable English regions, but with London having a greater proportion of enterprises with over 500 employees. In Wales and Northern Ireland, a larger proportion of employment and turnover is contained in 1-49 sized enterprises (Small Business Service 2004).

It is not therefore surprising, when a new potentially disruptive technology such as the Internet emerges, that development agencies should seek to encourage the exploitation of this in the important SME sector. Frank O'Donnell in interview confirmed the importance of the new technologies to the growth of the Scottish economy: '40% of the growth in gross value added is due to ICT'.

Five types of support agencies are considered below: the UK government, European Union, Scottish Enterprise, Chambers of Commerce and Scottish Universities. For public services the government has established the Office of the e-Envoy 'to improve the delivery of public services and achieve long term

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cost savings by joining-up online government services around the needs of customers' (Cabinet Office 2003), and a part-time e-commerce Minister has been appointed with a particular focus on broadband deployment. For industry, including SMEs, the UK Online for Business service was established in 2000, re-branded from the earlier Information Society Initiative launched in 1996. In April 2004 UK Online for Business was subsumed into mainstream DTI support under its 'Achieving Best Practice' programme (DTI Best Practice 2005).

At a European level, the Lisbon Strategy (EU Lisbon 2005) was adopted in March 2000 by the EU with the main purpose being to ensure that the European Union would develop into the most competitive and dynamic knowledge-based economy in the world, which would improve employment and social cohesion. The Strategy was accompanied by an eEurope Action Plan, with a later version of this being produced in 2005 (eEurope Plan 2005).

Among other areas, the latest plan focuses on supportive national legislation, sharing of good practice, benchmarking and broadband. There has been considerable interest in the social and development opportunities enabled by the internet (EU Info 2005). Accordingly many EU supported projects have been undertaken in Scotland in the e-business area. 'The Scottish Objective 3 Programme is a significant source of European funding which helps disadvantaged groups in the community who, for a variety of reasons, are excluded both economically and socially. The strategic aim of Objective 3 is to support economic growth in Scotland. The Operational Programme 2000-2006 promises to deliver £310m of ESF support.' (ESF 2005). This particular ESF programme funding for Scotland is expiring shortly and it seems unlikely that, with EU enlargement, such significant funding will be available in the future. There have been several ESF Objective 3 projects aimed at encouraging the development of e-business in the SME community. Examples of recent EU supported projects are:

**Skills for e-Business (Falkirk College)** To provide training in higher level IT/ICT skills for employees of SMEs in high growth companies, seeking, in particular, to provide the skills to succeed in an e-business environment. (Source : Scottish ESF Objective 3 Partnership).

**E-Business Innovation Support (Napier University)** To provide intensive management and e-business support to SMEs and entrepreneurs

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located in East Lothian and the Scottish Borders, with SMEs benefitting from accessing project materials online or attending training sessions. (Source : Scottish ESF Objective 3 Partnership).

**Scottish Centre of Tourism (SCoT)** To develop a dedicated on-line resource centre with small entities of learning materials for owners and managers in the Scottish tourism industry to address skills gaps. The proposal to develop the site was in response to the needs identified by employers in the tourism sector and supported national strategies advocated by the Scottish Executive and VisitScotland to improve the quality of tourism nationally (SCoT 2005).

The Scottish Executive's e-business-related strategy and delivery via the Enterprise Network has been aligned, in recent years, with the 'Smart Successful Scotland' policy (Scottish Executive 2000). This advocates that we 'embrace rather than fear change' and aims to 'ensure all industries are using new technologies'. It highlights that 'e-business not only improves the efficiency of existing structures and supply chains; in many cases it leads to a transformation in the nature of those industries. In the business to consumer area e-business can deliver the so-called "double win" from outsourcing work (and thus cost) to its consumers and at the same time improving customer satisfaction'. Another influential strategy is Connecting Scotland (2001) – 'Our Broadband Future. Making it Happen'.

The Enterprise Network has implemented a range of programmes to deliver the Executive's vision. For example, Scottish Enterprise and Business Lab have collaborated in the provision of the Digital Advantage™ programme to address the strategic needs of organisations. These workshops have been delivered over recent years to large numbers of SMEs (Business Lab 2000).

At time of writing, Scottish Enterprise offer various information services via websites at Scottish Enterprise (2005). Information includes guidance for 'going online', 'getting the best from broadband', an online payments service, a supplier directory and links to an accreditation facility for e-business suppliers. The supplier accreditation scheme is operated by ScotlandIS (2005).

Scottish Enterprise has also participated in ESF e-business-related programmes. For example, the Robert Gordon University and Scottish Enterprise Grampian have collaborated on a project to create and deliver bite-

sized 'chunks' of e-business training to SMEs via the University's virtual campus. From the SME's perspective, the project was an opportunity to learn about e-business. It was not a course in specific skills but in education, intended to empower SMEs to create medium to longer term benefits for their businesses. One SME, a hotel and golf club owner, summarised broader intangible benefits of the course as 'becoming more focused on the development of the business and having the chance to develop a business plan and strategy', 'developing a better understanding of branding, in particular the distinct branding of different divisions' and 'realising the importance of building complementary relationships with other businesses'. This last point is particularly interesting and will be considered again later. Key conclusions from this project were that the SME participants appreciated the e-learning mode, as they would not otherwise have been able to undertake training by travelling to a classroom (Stewart et al 2003). This conclusion has also been supported by others; for example, Fillis et al (2004) state: 'Traditional time-consuming, theoretical and lecture-oriented courses are not considered to be useful by small enterprises.'

The eBusiness Clubs initiative (eBusiness Clubs 2005) is led by the British Chambers of Commerce with support from the Department of Trade and Industry and other commercial sponsors. There is a network of clubs across the UK, generally coordinated by a local chamber of commerce. The eBusiness Club in Scotland has been going through a period of change. At time of writing, a Steering Group is formulating plans for the future. Aspirations include taking over the generic eBusiness Club website software including content management facilities. The central British Chambers of Commerce website has recently reverted to a more static form and Bernie Vincent in interview was keen to offer 'a more active site which is relevant to our market'. He stressed that eBusiness Clubs in Scotland do not compete with Scottish Enterprise 'we don't have their resources', but the Clubs do build on the reputation of Chambers of Commerce in providing a source of independent advice. He was keen to provide 'longer play programmes, more specific to decision making at board level'.

The Scottish universities have also taken up the e-business education challenge with both postgraduate (Certificate/Diploma/MSc) and undergraduate courses offered. In some cases, the courses have a business theme and are run by business schools whereas others are more technical and offered by computing schools. In some cases, the programmes are offered over the web by distance learning. Examples of courses are:

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- MSc Management of eBusiness, University of Paisley
- MSc in e-Business, The Robert Gordon University
- MBA Entrepreneurship and Business Venturing (e-business components), University of Stirling
- MBA Electronic Commerce, Queen Margaret University
- MSc E-commerce Technology, University of Aberdeen
- BSc E-Business Systems, Napier University
- BSc E-Commerce Computing, University of Dundee

The learning gateway, Learndirect Scotland (2005), contains other shorter courses run by colleges and private providers.

It is clear that these initiatives demonstrate a willingness to promote e-business in Scotland and the diverse strategies tackle different levels of engagement.

### **WHAT IS THE CURRENT STATE OF E-BUSINESS IN SCOTTISH SMES?**

It is generally accepted that larger organisations have made greater use of e-business than SMEs: 'Larger firms, which can afford more powerful solutions, are more likely to benefit from efficiency gains' (Business Watch 2004). Various authors have proposed models for classifying an organisation's progress with e-business: Quelch and Klein (1996), Timmers (1999), Hackbarth and Kettinger (2000), Willcocks and Sauer (2000), Chaffey (2002) and Chaffey (2004). Many of these are broadly similar, the model below (based on Chaffey (2002)) being useful for general purposes.

- Level 0 No web presence
- Level 1 Basic web presence, eg in a website listing such as Yell (2005)
- Level 2 Simple static informational site, often referred to as 'brochureware'

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- Level 3 Simple interactive site, eg with searching or email facilities
- Level 4 Online transactions, eg buying or selling
- Level 5 Online business processes (eg internal processes, links with customers or suppliers)
- Level 6 Virtual organisation

A model provides a useful scale against which an SME can measure itself and appreciate what may be possible. It is also useful for sectoral or national benchmarking studies. From a Swedish study, Ihlstrom and Nilsson (2003) propose an e-business maturity model with steps of Immaturity, On the Internet, E-commerce Provisional Strategy, Ready to Implement, Integrated and Effective E-commerce. More recent research (Fillis 2004) has questioned 'linear' stage models and suggested that the adoption of e-business is more 'non-linear' in nature.

At a national overview level, the adoption of e-business in Scotland can be examined by analysis of annual large scale e-business benchmarking surveys conducted for Scottish Enterprise, eg Scottish Enterprise (2004). In 2004 the survey sampled over 8000 organisations in the Scottish Enterprise area and over 2000 in the Highlands and Islands area. The report is also available with breakdowns by industry sector and by geographical region. While not all organisations surveyed are SMEs, as 99.8% of private sector businesses are SMEs, we can safely assume that the survey is entirely relevant to SMEs. The first point in the executive summary concludes: 'Access to the Internet and adoption of e-business technologies have levelled out. It is now more important than ever that companies and support organisations question the benefits to be derived from each e-business investment.'

The previous year's survey (Scottish Enterprise 2003) had identified some improvement in the uptake of e-business, although this was primarily at the email or basic website stage. This corresponds broadly to levels 1, 2, and 3 in the model above. It also concluded however that 'unless organisations can develop key business practices that deliver value', these companies will cease their efforts and investment in e-business. Beyond email and basic interactive websites, e-business applications would typically involve conducting some business processes (levels 3, 4, 5, 6) on the web and are likely to be more complex.

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The 2004 survey highlights an interesting point and trend: 'Although the base of technology adopters appears to have contracted, Scottish organisations have shown signs of growing sophistication through increases in key e-business practices and increasing use of IT to support business processes, such as managing the customer relationship and customer order processing' and 'encouraging greater use of IT in business processes appears a critical means of raising ... e-business benefits still further'. The survey highlights, by comparing the previous 4 years, that e-business has become more important for more organisations. It therefore suggests that organisations are on a 'journey' with more significant benefits over time. At the other end of the scale, the total number of SMEs accessing the Internet has levelled off or declined in some areas (notably Ayrshire, Lanarkshire and Tayside). This suggests that some SMEs which were previously using the Internet have not seen sufficient benefit or need. There is some evidence of higher connectivity in some rural areas, although this is not clear cut. Uptake of broadband amongst organisations had more than doubled from 17% in 2003 to 39% in 2004, compared to 56% in London in July 2004. The Highlands and Islands broadband access was lower at 19%. As might be expected, highest levels of broadband connection were found amongst software and e-business organisations (60%), creative industries (58%) and hi-tech (51%). A useful pointer, in 2004, was that 67% of organisations expected to adopt broadband within 12 to 18 months. Frank O'Donnell, however, raised a potential concern in interview, that while he expects broadband availability to be virtually 100% in the near future, Scotland's deployment of this is mostly through copper wires. Some other countries are investing in new fibre networks with a far superior capacity. The concern is that in a few years we may face further challenges in ensuring sufficient bandwidth is widely available at competitive rates. Our position internationally is important, particularly in relation to the attractiveness of the location for businesses.

A slight drop in e-business adoption was mentioned above. The report highlights that this change is statistically significant and outside the range of sampling error. Table 1 gives more detail.

Contrary to this lower end of the scale of e-business adoption, there had been an increase in the use of more sophisticated e-business practices. There were, for example, some significant increases in transacting with the public sector, trading online with international customers or suppliers, online ordering and online payments to suppliers (levels 4 and 5 in the model above). It was noted, however, that while many organisations regarded some processes such

as ‘managing the relationship with the customer’ and ‘partnering with suppliers or other associate companies’ important only about 25% of organisations used IT to support these processes.

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**Table 1**  
**Adoption of e-business technologies (all Scotland)**

%	2003	2004
Have & use a website	43	41
Have and use external email	66	65

*Source: Scottish e-Business Survey 2004*

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81% of organisations found some benefit from their e-business investment, with 19% indicating no benefit. The most important benefits (in decreasing order) were ‘increased efficiency’, ‘improved communication with customers or suppliers’ and ‘better access to information’. The main drivers for adopting e-business were ‘advantages outweigh costs’, ‘improve quality of products/services’, ‘improve business competitiveness’, ‘demands of customers/suppliers’ and ‘reduce operating costs’. Non-adopters cited ‘lack of relevance’, ‘lack of skills’ and ‘lack of knowledge (don’t know if e-business could help)’. The barriers to e-business were substantially greater in smaller and micro-sized organisations with much higher proportions feeling the e-business was not relevant. More than half the organisations had no internal information technology resource and very few had an e-business plan or budget, indicating a lack of strategic direction. Slightly more than half the organisations felt that they needed e-business advice, the main areas being in broadband, basic website instruction, e-marketing and basic e-business instruction. A surprising 22% of organisations were not aware of any sources of e-business advice. The awareness of sources of e-business or IT advice was Scottish Enterprise (15%), Local Enterprise Company (14%), external consultants (12%), local college (7%) and Small Business Gateway (5%).

### **WHAT EXPLANATIONS CAN BE GIVEN FOR THIS POSITION?**

Based on the above data, two particularly interesting questions can be asked:

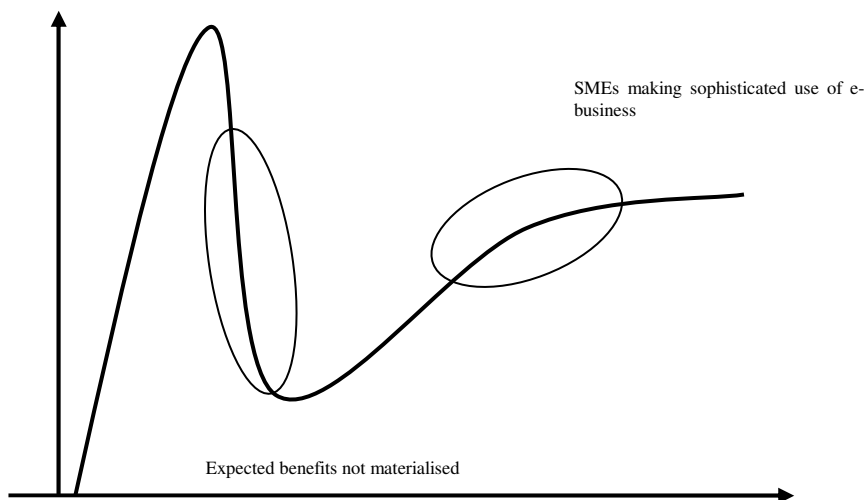
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- How can the slight (but statistically significant) drop in e-business uptake be explained?
- How can we explain why some SMEs are making more use of e-business than others?

In addition, we might wonder whether Scotland is different in its e-business uptake and this question will also be examined.

A useful framework for examining the state of Scottish SMEs' use of e-business is the Gartner Hype Cycle (Gartner 2005; Linden and Fenn 2003). These diagrams illustrate how new technology developments, such as e-business can be over-hyped initially then when reality dawns there is a huge drop in popularity. However, over time, more realistic benefits at a more modest level are achieved.

It can be hypothesised that some of the above observations can be synthesised and explained using the Gartner Hype Cycle:



In interview, it is Leith's view that some SME's are on the downslope in the 'trough of disillusionment'. This is consistent with the Scottish Enterprise (2004) e-business study where numbers of organisations using e-business had decreased slightly. Similarly those SMEs making a greater success of e-

business, as highlighted by Scottish Enterprise (2004) are on the 'slope of enlightenment'. We now examine these two points in more depth.

### **DROP IN UPTAKE**

In investigating the drop in overall uptake it can be seen that adopting e-business is an important point but continuing to use it is another issue. Some researchers have studied this concept, for example Bhattacharjee (2001). They distinguish between 'acceptance intention' and 'continuance intention'. Bhattacharjee concludes that 'perceived usefulness' is more crucial for acceptance intention but that 'satisfaction' is more dominant for continuance intention. Thus suppliers and development agencies should follow a twofold strategy of 'informing new users of the potential benefits of IS use and educating old users on how to use IS effectively'. They also point out that satisfaction is largely determined by confirmation of prior expectation as well as by perceived usefulness of initial use. Thus prior expectation plays a role in continued use. This view was supported by Frank O'Donnell in interview who felt that generally the benefits of e-business were 'oversold for a certain period'. Now, if anything the benefits are 'under-hyped' (E-Business Watch 2004). O'Donnell believed that 'awareness and adoption are not enough but that successful exploitation is key'. The need for better training for existing users was also supported by our respondent, Bernie Vincent. He also had an interesting point of view that, rather than focussing on high fliers, case studies should be about average businesses and modest benefits. In this way, benefits are not over-hyped, more empathy is created with SMEs and disillusionment is avoided.

Another example of over-hyping is the apparent assumption that e-business must be advantageous for businesses. The Scottish Enterprise study highlights that there are still many businesses who do not consider e-business relevant. Drew (2003) discusses the 'threat or opportunity' aspect from the SME's perspective. In many cases, there may be lack of knowledge of the potential benefits but there are clearly situations where SMEs have used e-business and found the experience detrimental. Perhaps this is most evident in cases where SMEs (suppliers) may be encouraged by the major buyers (customers) to participate in online trading forums. Online trading forums can take various forms. However, perhaps the most potentially undesirable form of online trading from the SME's perspective is that of the 'reverse auction' where suppliers compete in a real time auction endeavouring to beat each other on

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price. Comparison algorithms based on factors other than price, such as quality or track record, might be incorporated. The benefits of reverse auctions to both buyers and sellers are highlighted by various advocates, such as DTI Auctions (2005) and Achilles Group (2005). For example to sellers (eg SMEs), benefits are cited as 'reduced marketing costs', 'worldwide audience', 'useful feedback' and 'testing products and gauging value' (DTI). However based on the views of Scottish SMEs supplying the oil and gas industry, there seem to be minimal benefits from the SME perspective.

'Its very hard to differentiate between your product and another electronically instead of sitting face-to-face with someone'; 'Auction fever could mean that you sell something too cheap because of desperation'; 'The company who won it is going to make next to nothing and probably end up going out of business'; ' I completely disagree with them; it's just a race to the bottom.

will resist them as far as I can'; 'Reverse auctions show a cavalier disregard for safety because they are not able to assess on the basis of value and quality but simply on the basis of cost'. Thus patently not all e-business seems to be good business for the SME. The longer term implications of reverse auctions have been studied, by for example Jap (2002, 2003). She suggests that reverse auctions might be used to select a supplier suitable for a subsequent long term relationship. Another issue is the sustainability of the initial price reductions obtained by buyers. It is at present unclear whether buyers can keep obtaining significant price reductions from their SME suppliers. Suppliers may go out of business, thus reducing the choice available to buyers and transferring some power back to a few larger suppliers. It will be interesting to monitor the development of reverse auctions over the next few years.

Thus in reviewing the assumption that all e-business is beneficial to SMEs, this is evidently not the case. SMEs may be either forced into participating in competitive forums such as reverse auctions or decline the opportunity to bid. To summarise, the Internet has in many cases created a shift in the balance of power between buyers and suppliers. The availability of more information, wider reach and interactive nature of the web have in many cases created more power for buyers and less for suppliers. SMEs in this situation may adopt online trading forums but then discontinue because there is no benefit.

This discussion suggests that the potential benefits of e-business should not be hyped but a realistic picture painted of what users can expect. Following adoption, to avoid disillusionment SMEs must see benefits and, as explained

by Frank O'Donnell, it is not just about awareness and adoption but 'better use of e-business is key'.

### **GREATER SUCCESS WITH E-BUSINESS**

It is proposed that those SMEs making more success of e-business are on the 'slope of enlightenment' in the Gartner Hype Cycle. So how are these SMEs making good progress?

Through regular contact over the years with SMEs, Doug Leith in interview saw those making a success. His view was that a common factor with these SMEs is that they 'have achieved this by forming trusted relationships with other parties who help them think strategically' to take forward ideas and implement them. Bernie Vincent also confirmed the importance of trust. 'SMEs need a trusted source of advice'. Attitude and behaviour need to change. 'Bringing about change is about influencing people and you need to build up a relationship so that you can influence their behaviour'. He felt that one-off events and contacts were not sufficient and that ongoing communication, built up over time, was required to effect change in SMEs. We saw earlier that e-business has become more important for more SMEs over time, suggesting an 'e-business journey'. This view is supported by Wagner et al (2003) who 'suggest there are few real performance benefits evident in the early stages of adoption'. The longer term approach gains support from many quarters. Vincent's aspirations for the Scottish eBusiness Club are to offer more strategic programmes for board decision makers. Again the need for 'more strategic thinking' is also emphasised by Leith '.....What is the business trying to do strategically, and what is the role of technology in achieving that strategy?'. If the SME doesn't know how to do this, then they should work with someone they trust. O'Donnell's views were also consistent with this. He believed that, in the earlier days, e-business was presented as offering 'pillars on their own, disconnected from the general development of the business'. He believed that it should be considered 'in conjunction with change management, training and integration, as a mainstream activity'. e-Business offered opportunities for increased productivity across different business functions such as human resources, marketing and product development. Drew (2003) cites that the failure of many early dot.com ventures has 'shown that ambition, technology and marketing hype are not enough'. There needs to be a sound underpinning business model. The Digital Advantage<sup>TM</sup> program was intended to make

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SMEs think strategically. However it was a useful starting point and awareness exercise, but not a long-term programme. Wagner et al (2003) feel 'there appears to be a short-term outlook on the part of government agencies'. Bernie Vincent felt that the withdrawal of the DTI's UK Online for Business was premature. His view was that the "badging" has been diluted'. There was excellent material and 'good flows of information'. O'Donnell also believed that industry have complained about the loss of this useful programme. O'Donnell emphasised that while Scottish Enterprise are considering that e-business should become more of mainstream activity, this is 'to make it more important and integral to our business support'. This is in some contrast to the DTI approach, as highlighted by Vincent above. Drew (2003) argues that 'SMEs need tailored advice on e-commerce strategy and appropriate business models'. Clearly if something is a potential force for strategic change it needs to be evaluated in a strategic manner.

However if SMEs are to take a more mainstream and strategic approach to e-business, how can they go about this? O'Donnell explained that, on their own, 'SMEs don't know how to articulate their requirements and are in danger of getting a solution to the wrong problem'. Leith believed that SMEs making a success of e-business have formed trusted relationships with other parties. Vincent emphasised the importance of a trusted source of advice. Polly Purvis also confirmed that trust between suppliers and SMEs is 'essential' and that 'huge damage has been done to e-business in consumers' minds by scares'. Thus it appears that trust in advisers and suppliers is key and is a necessity if e-business is to develop, as it is likely that few SMEs can progress on their own.

In a Scottish context, Cruickshank and McLeod (2004) examined SMEs' attitudes to hosted services, also known as application service provision (ASP) or business process outsourcing. 'Using an ASP approach, an organisation accesses its information systems applications via a web browser with the data and applications running at the remotely hosted site of an external party, known as an application service provider. The organisation is thus in theory freed from the effort of managing its own in-house applications, information technology staff and resources'. This approach would thus appear to overcome many of the typical adoption issues, identified by Rogers (1985). For example, ASP services can usually be 'observed' and 'trialled' by allowing prospective customers a free trial for a month. Because the service is hosted, 'complexity' (and perhaps 'compatibility') issues are reduced. ASP services are often available on a rented or pay as you go basis

thus potentially providing a lower cost ('relative advantage') approach. However, despite the foregoing, the above study highlighted that SMEs have an overwhelming 'fear' of outsourcing their applications in this way and cannot generally bring themselves to the position of even considering a business case. As one SME put it 'If my bank manager with whom I've dealt for the past twenty years tried to sell me the ASP route, then I might feel a little more comfortable with the idea'. The SMEs' fear predominantly arises out of a loss of control. It appears to be more of an emotional reaction or attitude than a reasoned decision. In the study, means of overcoming this fear were proposed by the attainment of different forms of trust.

The IS supplier accreditation programme operated by Scotland IS is in a useful direction in terms of establishing trust between suppliers and SMEs. However, at the time of writing, only 14 suppliers are on the list, whereas Frank O'Donnell felt that around 100 are needed in the pool. Polly Purvis confirmed the 'limited success to date', adding however that 'those companies who have gone for certification have found it a valuable process'. She also felt that 'quality marks take some time to establish'.

To summarise this section, it would appear that SMEs need to take a more strategic approach to e-business. However in order evaluate and implement strategic developments the SME needs to somehow form a trusting, long term relationship with other parties who have complementary knowledge and services.

### **IS SCOTLAND ANY DIFFERENT?**

The final question addressed is whether Scotland is different from similar countries or regions in its use of e-business. The annual Scottish Enterprise survey does examine the state of e-business in Scotland (and its regions) but it does not include comparisons with other UK or international countries. Eurostat (2004) has collected comparative country data on several topics, but this is not however broken down to any subdivision (namely Scotland) of the UK as a whole. However before going on to examine Scottish comparisons it is useful to discuss a few statistics which place the UK in an international context. The Eurostat database provides the ability to make selections and perform tabulations: see Table 2.

**Table 2**

**UK e-Business Comparisons in the EU**

Percentage of SMEs:	UK	EU25	EU15	BE	DK	DE	IE	NL	FI	SE	NO
having website or homepage	65	57	59	67	80	71	58	65	74	82	61
with total turnover from e-commerce (<10 employees)	14	8.6	9.5	7	12	11	20	n/a	13	11	8
with total turnover from e-commerce (>10 employees)	8	5	6	7	8	8	13	n/a	n/a	8	6
having received orders online	26	13	14	17	25	17	18	16	16	20	12
having received payment online	5	2	3	2	6	3	8	3	n/a	3	n/a
having purchased online	49	26	29	40	28	46	32	21	18	38	27

*Key: EU25 (25 countries), EU15 (15 countries), BE (Belgium), DK (Denmark), IE (Ireland), NL (Netherlands), FI (Finland), SE (Sweden), NO (Norway). Figures for France were not available in the database.*

*Source: Eurostat (2004).*

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These figures tend to show that the UK does better than the EU15 category as a whole but less well than some countries in some areas. In particular, Scandinavia is ahead in some indicators. The OECD (2004) survey highlights, as with the Europa survey, that some other European countries are ahead for the UK on some indicators. On a more global stage, the situation is more disconcerting. OECD (2004) shows that SMEs in Canada, Australia, New Zealand, Japan and Korea are ahead of the UK in Internet use. E-Business Watch (2004) notes that 'the impact of information and communication technologies on enterprise productivity appears to be significantly lower in Europe than in the United States'. However it does place UK relatively highly in Europe. The DTI also conducts an annual survey (DTI 2004) which includes benchmarking the UK against a set of 10 other countries, including the USA. Conclusions are broadly similar to the above, with the UK increasing from seventh to third (out of 10) in the survey's 'overall ICT sophistication index' for 2004. One might conclude that, overall in an EU and international context, UK is doing 'alright' but is certainly not outstanding.

In the UK, Scotland's position can be assessed from DTI (2004) which includes a range of UK regional comparisons. However relative rankings in tables of UK regions and countries should be viewed with some caution, as there has been a fair amount of flux between the 2004 survey and those in 2003 and 2002. Generally in the 2004 survey, Scotland came out better than in 2003. Typically Scotland is somewhere 'in the middle of the pack', but with e-commerce (buying and selling online) 'increasing most significantly in Scotland' in 2004. Based on the latest survey, Scottish ratings have increased over time for:

- placing orders online
- making payments online
- ordering online via an e-marketplace
- linking online with local councils (but not tax payments)

Scottish ratings have decreased over time for:

- basic level access to Internet, having a website, using external email (but not hugely so)

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- linking of ordering to other internal systems
- systems integrating systems with customers
- responding proactively to competition

It is also possible to consider whether the Scottish SME situation is significantly different or unique by examining issues discussed in research and feedback obtained in primary surveys. Some research on Scotland has been conducted by Kinder (2002), Wagner et al (2003), Fillis et al (2004) and Cruickshank and McLeod (2004). Of course, other UK (eg South East England by Drew (2003)) and international SME research has also been conducted. While various research questions have been considered, there is nothing particularly Scottish about the questions being examined when studying Western-style economies, although the conclusions and recommendations may have implications for local support and development agencies. Thus in examining whether there is any specific Scottish angle to the indigenous SMEs' use of e-business, the conclusion must be that there is no such obvious issue, in a UK context. Scottish SMEs (as a whole) are broadly comparable to other UK regions and UK countries in terms of their use, level of use and issues. Some researchers, eg Drew (2003), Fillis et al (2004), have considered market sector variations and Wagner et al (2003) have also queried the skills available in supporting local agencies. It is possible that further consideration of issues such as these might lead to specific Scottish solutions to generic SME issues. In a broader international context however, Scotland and the UK do lag behind some other countries, for example Scandinavia in some cases, in the deployment of e-business.

### **CONCLUSIONS**

E-business is undoubtedly important for the economy, including SMEs. Over the past few years, there has been a significant amount of effort from the main support agencies towards e-business development in SMEs. However there are some signs that this is diminishing and that the approach may be too short term. In particular, the DTI's current support appears significantly less than its previous UK Online for Business programme which was generally well regarded and seems to have been terminated prematurely. EU funding is also likely to decrease in Scotland. There is a potential concern over future bandwidth in broadband deployment. While Scottish Enterprise seem to be moving towards less direct focus on e-business; their view is that e-business is

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very important and, as such, needs to be regarded in a more integrated way with mainstream business activities.

From benchmarking exercises, over the past few years until 2004 annual increases in e-business adoption had been observed in Scottish SMEs. However in 2004, a slight decline in overall numbers of SMEs using e-business was observed. At the same time, an increase in those making a greater use of e-business was also discernable. This led to an investigation as to why this was happening. It is important to distinguish between adoption and continuance. It is not sufficient for an SME to adopt e-business; exploitation is the key to success. Benefits should not be over-hyped but rather a more realistic approach needs to be portrayed in order to ensure continued adoption and avoid disillusionment. Even some public sector bodies are still exaggerating the benefits.

The main benefits of e-business are not in the early stages of adoption but rather in the more sophisticated applications, such as online business processes. E-business needs to be exploited in the context of the overall business and not seen as something different. There needs to a longer term strategic approach. SMEs do not generally have the ability to know what is possible and so third parties, such as business advisers and IS suppliers, are very important. However, the matter of trust between SMEs and such partners is vital, as the more sophisticated e-business applications, such as online business processes, will be critical to an SME's business. Therefore means need to be found of encouraging, creating and fostering long-term trusting relationships.

On the question of how Scotland fared in comparison with other parts of the UK and internationally, we can conclude that Scotland is 'doing alright' at both UK and international levels. Comparisons of UK regions between 2003 and 2004 show Scotland improving in 2004, but there is a significant amount of flux in the relative positions and it is premature to infer a trend here. Some other countries, such as Scandinavia, Korea and Japan, are generally ahead of the UK and so there would appear to be scope for improved deployment of e-business in the UK and Scotland.

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