

Innovative use of the Internet in established small firms: the impact of knowledge management and organisational learning in accessing new opportunities

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Internet, Innovation, Knowledge management, Organizational learning, Small- to medium-sized enterprises

Abstract

In this article, three established small- and medium-sized enterprises provide qualitative case study evidence of the extent to which information communications technology can be embedded within a firm's marketing strategy, from the earliest adoption stages to the integration of the Internet with key business functions. These case studies also provide insights into the innovative ways that can be used to reposition a firm, its marketing strategy, services and products, both within the national and the global marketplace. Established firms, in addition to new businesses and industries, could gain considerable competitive advantage from Internet usage, if they can achieve the right mix of managerial capacity and marketing focus in terms of image, brand and customer needs. Their human resource base could allow such firms to "reinvent" themselves, mainly by effectively accessing and embedding new knowledge. It emerged that organisational culture facilitates and supports the wider access and application of new knowledge through organisational learning mechanisms.

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SMEs and the Internet

The Internet is predicted to provide "unparalleled" new opportunities for those SMEs that are entrepreneurial enough to recognize and take advantage of highly profitable new niche markets (Forster, 2000; Poon and Swatman, 1997). In both industrially developed and developing countries, SMEs are perceived by academics, practitioners and policy makers as crucial to wealth creation and new employment generation (DTI, 1998, 2000; OECD, 2000). It should be recognised, however, that this important sector of the UK economy is not represented by a homogeneous and easily identifiable mass of economic activity (Martin and Matlay, 2001; Matlay, 2000a). Moreover, within this diverse and heterogeneous SME sector, some businesses appear to be more highly rated than others. For example, in the UK, the DTI characterises "key" SMEs as "dynamic, enterprising and ambitious, given their role in entrepreneurship and innovation" (DTI, 2000, p. 4).

These "high growth, high technology" firms appear to be more able and more willing to seize the opportunities afforded by the Internet. Importantly, their fast-growth tendencies are often associated with the entrepreneurial character of the owner, individual managers or operational teams (McCalman, 1999). Given that "virtually every aspect of organisational learning has relevance either directly or indirectly for entrepreneurial management", enhanced entrepreneurship, innovative workplace cultures, knowledge management and organisational learning are often viewed as the main strategic factors associated with successful information communications technology (ICT) adoption and usage in SMEs (see, for example, Matlay, 2001; Leitch and Harrison, 1999). The strategic impact of organisational learning on entrepreneurial activity has also been stressed by earlier studies on this topic (Edmondson and Moingeon, 1996; Pedler *et al.*, 1991; Senge, 1990; Argyis and Schon, 1978).

Where ICT and entrepreneurial activity are strategically linked, a significant relationship is found between Internet usage and the marketing function, often evidenced by "complex, creative and innovative" relationships (Noh and Fitzsimmons, 1999).

The key to organisational survival and sustainable competitive strategy may lie in the ability of a firm to undergo strategic change; so that the marketing function can respond to ICT related opportunities (Brady *et al.*, 1999; Komenar, 1997). Furthermore, those SMEs that adopt “transformative” use of ICT expect to derive customer service advantages and marketing performance gains (Brady *et al.*, 1999). Strategically, however, all firms need to make creative and innovative changes in order to deal effectively with actual or perceived ICT related marketing opportunities. Despite an obvious emphasis on managerial capacity and marketing opportunities, less attention has been focused on the strategic aspects of SME operation, especially in terms of the relationship between the marketing function and ICT adoption (Martin and Matlay, 2001).

Interestingly, the impact of the Internet on SME profitability has been described largely in terms of connectivity, as highlighted by a number of recent benchmarking surveys that explored ICT take-up in smaller firms (UK Online, 2000). Measures of ICT adoption in SMEs tend to identify access rather than focus on its strategic or marketing advantages. Following the 1998 Competitiveness White Paper and in order to promote the use of ICT, the UK government set up ambitious targets for Internet adoption, some of which have already been achieved (UK Online, 2000, section 1). Both the targets and the achievements in this field are impressive. Over 1.5 million SMEs were to be “wired up” to the digital marketplace by 2002. With 1.7 million businesses already connected and 81 per cent of all firms on-line in one form or another, this is seen to be a successful outcome in terms of national e-economy development (UK Online, 2000).

In terms of the overall business population, larger firms still dominate Internet usage for commercial purposes. Typically, it is the established businesses rather than the newly-created organizations that dominate Internet access statistics. The way in which ICT implementation occurs, however, differs considerably with location, business sector, relative size and type of operation. Human capital factors, especially the managerial competency of the key decision makers, also play an important role in ICT adoption (Martin and Matlay, 2001; Martin, 2001b; Fallon and Moran, 2000). Managerial

perceptions and attitudes can influence the development of business strategies that result in ICT adoption and implementation. This is particularly important in view of earlier research that identified owner/managers as the main decision makers and risk takers in the process of recognising opportunities and threats within their chosen target markets (Matlay, 1999).

Market analysis and related responses/strategies might therefore be seen as a sophisticated function for e-use in SMEs. However, the DTI adoption ladder identifies “online marketing” only as step two in a five-stage sequential progress to e-commerce and full ICT integration by a company (Martin and Matlay, 2001). This model places heavy emphasis on financially based transactions as the target for all firms, claiming that “despite its high level of connectivity and basic e-commerce applications, businesses appear reluctant to move up the adoption ladder” (UK Online, 2000, p. 5). This appears to ignore the inherent diversity of applications at stage two, “blanketed” together under the general heading of “marketing Web sites”. The model seems to equate those firms that have embedded the Internet into their business function with those that have created an information-based site as an addition rather than an integral component of their core business activities. It also ignores sector-specific differences in terms of whether this is an appropriate goal for all the SMEs operating within it.

To further develop the specialist literature on ICT implementation in SMEs and how this relates to organisational strategy, a small scale qualitative study was conducted which included only firms that had already adopted the Internet. This research study explored the process of Web site design, its usage and position/relationship with marketing and related operational functions. Clear evidence emerged of some very creative uses of the Internet as part of the overall marketing function, due largely to the strategies and new ideas developed by the owner/manager or key personnel within the company.

Research sample and methodology

The way in which the participating firms were identified precluded this sample from being representative of SMEs located in the West Midlands region of the UK. Only those firms

that were already connected to the Internet and with effective Web sites were selected to participate in this research study. Current figures on Internet adoption show that about 80 per cent of SMEs have access to the Internet, with a much smaller proportion also able to implement and embed new technologies for strategic purposes (UK Online, 2001). Each of the chosen SMEs was located by focused Web searches, in order to identify different types of Internet user companies. To provide a basis for comparison, the search focused on three specific business sectors: manufacturing, hospitality and professional services. Searches were carried out using dedicated search engines, including Yahoo!, Excite and Askalix. On-line trade directories, such as Applegate.co.uk, were consulted in order to further focus the targeting process. Using the Johnson and Hignite's (2000) model for Internet user organisations, each site was tested against the seven criteria (adapted in Martin, 2001a):

- (1) Time to load, particularly the first three screens.
- (2) Types of information held on the first three screens.
- (3) Site design (e.g. use of white space)
- (4) Error avoidance, both in terms of faulty links, "dead ends" and in terms of information accuracy.
- (5) Response time to Web-based inquiry
- (6) Features related to the DTI adoption ladder (UK Online, 2000), especially the availability of interactive facilities to collect customer data or feedback.
- (7) "Feel", i.e. whether the site conveyed an image for the company or whether it was formulaic, following a standard pattern rather than incorporating particular company features.

In line with current UK Online's (2000) statistics, the sample comprised mainly small rather than micro- or medium-sized businesses. A brief summary of features is shown in Table I.

All participating firms met the SME definition requirements as given by the European Union and were located in the West Midlands region of the UK: 15 in rural areas and 15 in urban areas. Only four of these SMEs were owned and managed by women, all joint or team start-ups in the professional services sector. The owner/

Table I Sectoral spread, ownership, and start-up of SMEs in research sample

Organisational type	Research sample (N = 30)		
	Manufacturing	Hospitality	Professional
Family firms	7	5	0
Partnerships	2	3	3
Joint or team start-up	1	3	6
Total (N = 30)	<i>n</i> = 10	<i>n</i> = 11	<i>n</i> = 9

managers in the research sample were clear about how their Internet sites should look, what message they were trying to convey, and what they hoped customers would think about their sites. Obtaining feedback about the site was cited as a key reason for participation by owner/managers, all keen to know how the sites had been located and how the research team rated them.

A sub sample of the Internet user firms identified was contacted by e-mail to request their participation in the research study. Due to time constraints, only those responding within five working days were included. An initial questionnaire was sent by e-mail in order to establish the size of the respondent company and verify its suitability for the research study. The first 30 complying SMEs were contacted to confirm participation and interviews arranged on the respondents' premises. Owner managers were requested to provide the basis for each case studies, by compiling an initial profile of the firm. The researchers were available to facilitate the compilation of organisational profiles. These reflective accounts were also tested against observed practice, relevant documentation, and face-to-face interviews with other members of staff. All interviews were carried out on-site, with a semi-structured qualitative focus. Throughout the research process, all communication other than face-to face interviews was carried out via e-mail.

Organisational Web site profiles

Web site age varied between 12 months and four years and 43 per cent of respondents were using their original Web site, modified to include new features or ideas over its lifetime. In-house development of the Web site had been a planned process for some firms but in others this had followed "difficult first experiences" which had proved costly in terms of time, money and faith in the Internet as a business

tool. One manufacturing owner/manager was building a third Web site in-house, after two less-than-satisfactory experiences, including non-delivery of promised/expected outcomes from external Web site designers, leading to litigation in one of these cases. The respondents claimed a wide range of Internet use (Table II) echoing stages identified by the DTI Adoption ladder (UK Online, 2000) and by Poon and Swatman, (1997).

Interestingly, these firms exhibited similar patterns of Internet use in some areas. External communication was used across all sectors, but was perceived as particularly useful by hospitality sector firms, and described in terms of "everyday practice" by those in manufacturing supply chains. Importantly, internal communication was valued across the whole sample. Whereas professional service companies saw this as "a vital way to share ideas and to build knowledge within the firm" (Financial services managing partner), those in other sectors were not so sure. Their reservations appear to relate to staff that would "waste valuable time talking to each other" on the Internet, an issue of concern in larger organizations (Lynch, 2001). Owner/managers felt that if staff wanted to share ideas or build new knowledge they could do so in other ways, i.e. by face-to-face meetings or traditional written communication. Similarly, while the retrieval of "regular planned data" as a routine was perceived as "useful", accessing the Web to search for information was not acceptable. In this context, concerns appeared to be focused on confidentiality, access to pornography or other unsuitable sites, as well as on wasting organisational resources. A minority of respondents seemed to value new ideas and sources of information and allowed staff access to data via the Internet. The expectation was that

employees would retain new knowledge within the organisation and add it to existing market-related databases.

The development of eCommerce, in terms of cash-based transactions, was linked to only 13 per cent of participating firms, while 77 per cent used the Internet as a key marketing tool, by utilising it as a catalogue of goods or services or as a proxy sales leaflet. The Web site was used in all promotions, new enquires were directed to it and it generally reflected the style and content of existing promotional materials. In total, 33 per cent of respondents perceived their Web sites of "great" or "vital" importance to their firm (Table III), identifying the use of the Internet as providing new routes to make prospective customers aware of their products and services. Owner/managers also believed that their Web sites "opened doors" to new customers, both in the UK and further afield. Of the remaining 66 per cent of respondents, most viewed Web sites as of minor importance compared to other factors, but claimed that it might grow in importance sometime in the future, when more widespread online use could give them elements of competitive advantage. The 17 per cent of respondents who did not perceive the Internet as important were not sure about future benefits and echoed the findings of Hitt and Brynjolfsson (1996) in terms of gaps between anticipated and actual benefits of ITC adoption. They expressed the view that the Internet was nothing more than a gamble, which so far had not paid off for them, but that it was worth waiting to see if its usefulness would develop as a medium- or long-term marketing tool.

Case studies results

The three firms selected to provide case study data for this paper appear to have few similarities. The common factor that justified

Table II Web site usage in respondent SMEs

Type of usage	Manufacturing	Hospitality	Professional
Communications with customers or suppliers	10	11	9
Communications in-house	2	0	7
Specific Information retrieval	5	6	3
New information search	4	8	9
As catalogue/sales leaflet	7	9	9
For direct sales	1	3	0
As background marketing tool	6	8	7
To redefine brand/market position or share	4	3	3

Table III Web site importance in respondent SMEs

Web site importance	Manufacturing	Hospitality	Professional
Importance to company: – none	3	1	1
Importance to company: – minor	5	7	3
Importance to company: – great	2	2	2
Importance to company: – vital	0	1	3

the selection criteria was the way in which the Internet had been taken on board. In each of these cases, the Internet operated as an embedded part of the business strategy. Firm A is a 75 year-old company which manufactures bicycles; Firm B is the new version of a company set up in 1861 as a result of the founder's innovations in sanitary engineering; Firm C has just celebrated its 25th anniversary, progressing from its original distribution of components to its current independent worldwide distribution of semi-conductors. These are all established firms, with business functions separate from the Internet.

A key similarity between the three SMEs was the way in which they had identified the Internet as a route to differentiate and/or reposition their firms. The independent distributor of silicon chips saw the Web site as part of a marketing strategy that emphasised organisational qualities such as responsibility, security, respectability, consistency – factors not usually associated with independent distributors who are often perceived as “cowboys”. This aspect of organisational strategy was explored through an initial market research project devised to assess (both existing and potential) customer perceptions. As a result, the Web site was built with customer involvement, a continuing dialogue enabling the style, format and usability of the site to be customised to specific customer needs.

In contrast, the cycle manufacturer had identified the Web as a key part of the process of strategic change of its organisational image. In the owner's view, a modern, innovative firm needed a less “boring persona” than the current, traditional product range which invariably identified it as an old-fashioned manufacturing firm. To support the new image, a Web site had been developed as part of an innovative “youth-oriented” marketing strategy. On this Web site, free downloadable screen savers and games were positioned around the company logo that featured an animated and easily recognisable character. The theme was carried forward in supporting marketing activities, trade shows with Big

Brother type scenes and sponsorships of related sporting events. Customers were deliberately engaged in Web site development, with the most recent development including a monthly video conversation and lifestyle account of a key customer. The site was also changed on a monthly basis to encompass new ideas and marketing features. The owner claimed that, “we want regular visitors, who regard the site as different, new, exciting – just as we hope they will see our products . . . although our target market for sales may be the 14-24 year olds we've found that parents also tap in to see what's new this month and we have began making new inroads into that market too”.

While the bicycle manufacturer perceived the Internet as a “way to break out of our former fuddy-duddy image and change the way in which we are perceived . . .” the microchip distributor saw the Web as a way to add “gravitas and respectability”, and viewed the organisation's Web site as “a way to show that we are different, solid, reliable people to do business with . . . different from the others in our field who are regarded, sometimes justifiably, as cowboys . . .” The sanitary ware manufacturer also saw the Web as a way to change its existing market position, by using the Internet to develop a new image, largely linked to luxury products and services from other companies already successful in the market place: “. . . frankly, at one stage . . . the firm was seen as a maker of old toilets, . . . but developing these sites helped us through the process of changing that perception and opening up a new niches in the marketplace . . . association with luxury hotels and better goods also added value to our range, the style and format added to this . . . our firm is now seen as antique, worth investment . . .”.

Organisational learning and knowledge management

In developing their Web sites each owner had discussed the vision and process with other

staff. The staff consulting process usually involved the evaluation and further development of ICT understanding, knowledge and skills, both at work and home. The Web site development included all employee categories, from shop to top management. For example, in one firm, a key team member was a part-time worker (who was also a mother) prompted to invest in a PC equipped with online video conferencing resources by her son's departure for Australia, and therefore experienced and unafraid of new technology. There was a pattern of meetings and discussions, established in order to share ideas, experiences and ICT expertise. In two of the cases, attempts were made to formally capture this information. In one case, this was achieved through the use of dedicated software and in the other a "company bible" was compiled with structured "how to" instructions, problem-solving techniques and ideas for new uses, all included by common agreement. The attempt to capture "how to" and "how this works" was the subject of continuous review and efforts to increase usage effectiveness.

The use of dialogue and deliberate sharing of problem-solving techniques, new ideas and skills, was perceived to support individual and team learning across the whole organisation. New ideas, acquired mostly through networking activities, membership of virtual associations, links with customers and suppliers and formal learning activities, were also shared and adopted on a regular basis. As important organisational learning and knowledge management tools, formal and informal networking activity were supported across the firm, with all employees being encouraged to discuss new developments externally, find new sources of ideas and bring them back into the firm. Importantly, the continuity of organisational learning was ensured by the positive attitude towards strategic change exhibited by owner/managers and management teams.

Key factors that affect the use of Internet in SMEs

Important common trends were identified through the in-depth analysis of case study evidence. First, owner/managers and key personnel recognised the importance of the Internet and its strategic use for marketing

purposes. Organisational Web sites were used strategically to develop stronger and more effective links with both customers and suppliers. Second, a deliberate attempt was made to use Web sites in order to change customer perceptions' of the firm's products or services. The Internet was also viewed as a focused marketing tool that could be used for tapping into new niche markets and/or to reach new customer categories. Third, existing or newly developed "people management" skills were consistently applied in order to promote individual/team learning and knowledge management. A variety of knowledge management techniques were used to deliberately record and share, across all staff levels, strategic and marketing-related data and information.

These techniques were perceived as facilitating organisational learning and the adoption and customisation of relevant external knowledge. Furthermore, new knowledge was routinely created within these organisations as an indirect outcome of continuous and embedded ICT implementation and innovation activities. Finally, the presence of an "e-manager" in each of these companies facilitated a more extensive and productive appreciation of the strategic potential of the Internet. Moreover, within the specific competitive context of each firm, e-managers were successful in focusing ICT-related potential towards those organisational functions and employee categories that offered the best strategic change and resource mix, thus maximising the impact and cost-effectiveness of Internet adoption.

Importantly, the Internet's potential as a marketing tool appears to have been understood and increasingly appreciated by owner/managers and their management teams. This early realisation and the cumulative measures that were taken to address strategic change in organisational marketing focus have greatly facilitated the efficient use of existing human and financial resources. ICT-related collaborations and discussions with customers and suppliers began long before the Web site design was undertaken. Owner/managers chose to develop existing business relationships and to seek external technical help in providing the type of Web site that would be most appropriate for use by customers, suppliers and other stakeholders.

In firms A and C, the design and implementations of their Internet sites was incremental and the result of complex internal decision making processes. Owner/managers, key personnel as well as other categories of employees played an important role in devising the format, style and content of Web sites. In firm B, existing internal resources were deemed insufficient and an external specialist was consulted in regard to the proposed Web site. The owner/manager recorded his disappointment at the way in which his first Web site had to be abandoned due to poor design and resulting fraudulent activities. Having "learned a great deal" from the development of his initial Web site, the owner/manager of firm B took on a much more important role in the design and implementation activities related to the firm's second Web site. In retrospect, he felt that his role in the design and implementation of the second, more successful, Web site was enabled by his commitment to individual and organisational learning as well as knowledge management:

... I have become an expert in the whole subject as a result of our problems. Next to my chair at work [there] is a towering pile of computer books to enable me to make best use of the software we have got. I realise now how very easy it would have been to do some of the things connected with the site, people just don't have the knowledge and believe the things they are told. But where do you go to get decent information? (owner, company B).

This need for relevant and unbiased information was also mentioned by most of the staff involved in the Web site design and/or implementation process in the three case studies under scrutiny. It appears that the usual sources, including government agencies and business associations had proved either insufficient or inappropriate. For example, the owner/manager in Firm B claimed that:

... Professional bodies whom you might consult for other things seem to be in the same boat as the small companies that they seek to advise. Their Web sites are "under construction", they have major faults or other problems with navigation or download, not to mention spelling errors ...

Such statements parallel the views expressed by other small business owner/managers in relation to a perceived need for those in business support to develop ICT awareness and understanding of how Web site related assistance might work in an SME context

(Martin, 2000; Peet *et al.*, 2000). It is suggested that official support might include the provision of a cohort of e-enabled business advisors with practical experience of ICT implementation in smaller businesses. It might also include focus groups or other means to promote the best ways in which firms, such as those taking part in this study, could develop e-marketing and related strategies. More focused research on the ICT needs in the SME sector and how these relate to marketing, including Internet usage rather than just access, would help clarify whether the participants in this survey were typical of a wider range of Web-oriented entrepreneurs (see also Kai-Uwe Brock, 2000).

Concluding remarks

A number of important marketing-related findings also emerged from this study. The key results relating to this particular organisational function would seem to indicate that the marketing aspect of Internet implementation is a vital part of its establishment within the business, with important repercussions on other strategic aspects, such as innovation, human resource development (HRD) and effective e-commerce presence on domestic and/or international markets. The owner/managers in these three cases were already committed to develop marketing strategies and operations, which they were able to enrich by ICT adoption and usage. It can be concluded that those owner/managers who possess relevant skills and knowledge would be able to recognize the Internet's marketing potential and build on it. Conversely, those who lack an understanding of marketing and related ICT potential might be expected to lag behind in terms of sustainable competitive advantage in the new economy. This is particularly important given the role of small firms in innovation.

The practical application of this study for owner/managers considering Internet implementation would be for them to focus equally on 'people factors' and on technology, rather than exclusively on technological aspects. The development of organisational learning and knowledge management strategies might be a useful part of ICT design, implementation and support processes. These would facilitate the appreciation of e-marketing and the

evaluation of existing knowledge bases, as well as skills evaluation, development or acquisition. It appears that all employees involved in Web site design needed to develop their wider understanding of the purpose and application of the Internet within their firms. Facilitating internal communications also proved important, since employees often provided unexpected sources of expertise, sometimes as a result of non-work related or leisure activities. In the process of ICT design and implementation, external sources of expertise, information and advice proved vital, especially an ongoing dialogue with customers and suppliers. In each of these case studies, the need for relevant and accurate professional advice and/or information was perceived as crucial. The more traditional sources of small business support proved both insufficient and inappropriate for Internet implementation and development purposes. Hardware and software suppliers were perceived as potentially useful sources of relevant information but the respondents felt that most of their advice appeared biased towards their own products.

Significantly, there was general agreement amongst respondents about a lack of official business support focused specifically on the ICT needs of SMEs. In addition, respondents operating in rural areas felt particularly disadvantaged and commented unfavourably on the "retreat" of government-funded business advice services into the larger cities in the county. Given the lack of connectivity in some rural areas, relying on a regional business advice portal proved not to be an efficient or cost-effective approach. In the three case studies selected for in-depth investigation, Internet-related organisational learning and knowledge management were recognised as crucial to their Web site design, development and implementation processes. Further research is needed in order to identify whether organisational learning and knowledge management are of similar importance and equally effective across a wider spectrum of SMEs operating in this important sector of the UK economy.

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