



Information literacy amongst UK SMEs: an information policy gap

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Abstract

Purpose – The purpose of this paper is to explore information literacy amongst small- and medium-sized businesses (SMEs) in the UK and the USA and argue that information policy in the UK has not given sufficient attention to helping these companies navigate the ever-increasing volumes of information accessible over the internet.

Design/methodology/approach – A combination of primary and secondary data have been used. The primary data consists of a survey of UK SMEs, which explored how these companies use the internet as a research tool. The results of the survey are compared to similar surveys carried out in the USA. Several significant UK policy documents are examined to find out how government policy in this area has addressed the issue of information literacy amongst SMEs.

Findings – It is shown that UK SMEs wasted over £3.7 billion in 2005 in terms of time wasted through inefficient use of the internet as a research tool.

Practical implications – It is argued that while government policies in this area have put resources into encouraging SMEs to adopt broadband and engage in e-commerce, they have not sufficiently addressed the issue of information literacy.

Originality/value – Little research has been carried out into how SMEs use the internet as a research tool and this is the first time that a financial cost figure has been applied to inefficient searching by these organisations.

Keywords Information strategy, Research, Internet, Small to medium-sized enterprises, United Kingdom, United States of America

Paper type Research paper

Introduction

Small and medium-sized businesses (SMEs) now have access to electronically distributed information resources that until very recently were largely the preserve of larger enterprises. Previous inequalities were largely due to the high cost of accessing such resources which required dedicated data connections to remote database hosts, such as Dialog and DataStar, and charging mechanisms that would typically include a per minute rate for using the network as well as charges per line of text or document downloaded. Users of these online databases tended to be trained information professionals who understood how to construct efficient search strings in the proprietary languages of each host. Inexperienced users could often find themselves running up large access and usage fees and not actually finding the information they wanted. Generally, only larger companies, or very information-intensive smaller ones that could justify the expense of employing an information professional as well as the database subscriptions, would have access to such resources. The growth of the internet as a platform for information distribution and the recent rapid adoption of



broadband by SMEs in most developed economies has, to a large extent, levelled the playing field for information access (Rosenberg, 2002). As of December 2005, 61 per cent of UK SMEs used broadband to access the internet (Ofcom, 2006) and all the major database hosts now provide access to their content using the World Wide Web. On top of this the web has encouraged new content providers and aggregators to enter the information marketplace, such as OneSource, Hoover's and Marketresearch.com. Combine all these resources with the estimated 11.5 billion plus pages (Gulli and Signorini, 2005) from websites belonging to companies, public bodies, trade associations, web logs, and others and it is obvious that SMEs have access to a wealth of potentially valuable information. However, an important question arises as to whether many of these companies have employees skilled enough to make best use of these resources. This article explores this question using primary research from a survey of UK SMEs, plus secondary research from the UK and US into how companies use the internet and considers the findings within the context of UK public policies on information technology literacy. Some tentative recommendations are then made for future public policy in this area that might be developed.

SMEs in the UK

Definitions of what constitutes an SME vary across countries, with the US Small Business Administration defining an SME as a company employing less than 500 people and the UK Office for National Statistics defining it as less than 250 people. Even the UK's more narrow definition includes a very wide range of company types, ranging from a single person business operating out of someone's home to a manufacturing firm operating across several sites and which exports its products globally. In this respect, the use of the term SME can be misleading as many of the issues relevant to the manufacturing firm will not be relevant to the person working out of the spare room and vice versa. Statistics from the Department of Trade and Industry's (DTI) Small Business Service (SBS) provide a useful breakdown of UK SMEs in terms of company numbers, revenues and employment (DTI, 2005). According to the SBS, at the end of 2004, 99.8 per cent of all UK enterprises were SMEs, with the vast majority, 73 per cent, having no employees. These were typically partnerships or limited companies having only an employee director. Whilst the overall number of SMEs within the UK economy is impressive, their contribution to the total turnover of UK enterprises is less dramatic at 51 per cent and they account for 58 per cent of total UK employment. SMEs are, therefore, clearly an important part of the UK economy, a factor that has long been recognised by successive governments.

SMEs and information policy

The DTI has been behind a number of initiatives in recent years to improve the competitiveness of SMEs, with particular attention being paid in the last decade to encouraging them to adapt to the rapidly changing information and communication technology (ICT) environment. However, as pointed out by Rosenberg (2002) and O'Sullivan (2002), the emphasis of these initiatives has been to focus on the "communication" and "technology" aspects of the new environment without sufficiently considering the "information" component. Abell and Oxbrow (2001) make this point in their study on the ways organisations use information for competitive advantage:

The emergence of personal computers and IT networking has led to widespread use of desktop computing. As a result a great deal of attention has been paid to the development of “computer literact”, and computer literacy is now a core skill for many posts. The focus is on the ability to use computers and standard software applications, but stops short of being able to structure, find, evaluate and use the information to which a computer provides access (Abell and Oxbrow, 2001, p. 131).

Supporting evidence for Abell and Oxbrow’s concerns can be found in the annual reports for the UK Government’s “UK Online” initiative, which was launched in 2000 and followed the publication of the Prime Minister’s “e-commerce@its.best.uk” 1999 report that laid out a strategy for making the UK a leader in the much hyped “global internet economy”. Three UK Online annual reports were published between 2000 and 2002 and between all 351 pages there is scarcely a mention of how the many millions of pounds that were being spent on this initiative might extend to help businesses use the internet as an information gathering tool. The emphasis is on getting businesses and consumers connected to the internet and then encouraging them to engage in e-commerce as buyers, sellers or both. The strategy for achieving the Government’s policy is laid out in the 2000 Annual Report with two sections of the report, “Confident People” and “Successful Businesses” coming the nearest to addressing Abell and Oxbrow’s concerns. However, even with these sections there is no mention of helping people and businesses to better use the internet to find information that may be of commercial value. The summary of the goals of the “Confident People” aspect of the policy alludes to helping people use the internet as an information resource but only in a social context:

- (1) *Goals.* To ensure that everyone in the UK who wants it will have access to the internet by 2005 the Government will now:
 - implement a package of measures to improve access to the internet at home, at work and in the community;
 - embed information and communication technology skills in the education system and throughout lifelong learning;
 - work with industry to ensure a safe and secure environment for e-commerce and to help people trust the internet; and
 - help increase people’s motivation to access the internet by driving up the amount and quality of social content (Office of the e-Envoy, 2000, p. 35).

The “Successful Businesses” section is very similar in that it emphasises a desire to encourage businesses to have an internet connection and engage in e-commerce but does not address some of the deeper issues about information literacy within an electronic environment:

- (1) *Goals.* By 2002:
 - 1 million SMEs actually trading online;
 - the UK’s smaller businesses (under 100 employees) to have reached the level of the international best in use of e-business; and
 - a higher proportion of business-to-business and business-to-consumer transactions taking place electronically in the UK than in any other G7 country.

The Government will now:

- invest an additional £25 million over three years to help small businesses exploit the potential of information and communication technologies; and
- support industry in improving competitiveness through e-business technologies and processes (Office of the e-Envoy, 2000, p. 41).

The 2001 and 2002 Annual Reports are very similar in their emphasis on raising internet connectivity and computing skills with sections devoted to benchmarking the number of internet connections in the UK against other developed economies. In this respect it could be argued that the above policies were a success with 57 per cent of the UK's 15.5 million internet connections being broadband by September 2005 (Ofcom, 2006). A survey by YouGov in 2006 found that UK broadband users were spending the equivalent of 50 days a year online with an increasing use of the internet for e-commerce and banking (Ilett, 2006). It seems that the UK Government has succeeded in helping to provide an environment where using the internet for a variety of purposes is becoming the norm and the growth of broadband connectivity amongst individuals and businesses has played a large part in achieving this. However, the question arises as to whether UK businesses are using the internet efficiently as a tool for accessing commercially valuable information. The following section describes the results of a survey of UK SMEs and their information seeking behaviour. It compares the results of this with similar surveys carried out in the US and provides an estimation of the cost to UK businesses that do not use the internet efficiently as an information resource.

Survey methodology and results

In May 2006 a survey of UK SMEs was conducted where respondents were asked to describe their business and the methods they used to find information relevant to the running of the company. The survey was conducted using an online survey with companies randomly chosen from a selection of the membership lists of five chambers of commerce from England, Scotland and Wales. E-mails were sent to 1,320 companies inviting them to fill in the online questionnaire using the contact address provided in the directory. Of these e-mail addresses 422 were found to be dead leaving a usable sample of 898 and a total of 132 usable replies were received giving a response rate of 14.7 per cent. The sample was obviously biased to those companies that use the internet, as to take part in the survey required an e-mail address and access to the web. However, because the focus of the survey was to find out more about how SMEs used the internet as a research tool, this was an advantage by acting as a filter. Although the survey is too small to draw firm conclusions about the behaviour of all UK SMEs, responses to most of the questions were consistent to the extent that some tentative conclusions can be drawn. There are also some strong similarities with similar research carried out in the US, which supports these conclusions. The survey questions can be found in the Appendix.

Almost two-thirds of the respondent companies operated in the service sector, closely mirroring the breakdown of enterprises across the UK. A total of 63 per cent had less than five employees with only 7 per cent having more than 100 employees. Of the respondents, 60 per cent of the respondents were either owners or directors of their companies, closely reflecting the national breakdown of UK SMEs noted from official statistics earlier. Across all respondents an average of 12.7 hours a week were spent

using the internet for work, while an average of 6.4 hours a week were spent looking for information on the internet. Question 6 asked respondents to rate the types of information that were most important to their organisation. Information about current and potential clients was considered the most important, reflecting the commercial nature of most respondents' organisations. Respondents were also asked which sources were most important to them for finding information relevant to their business. They were asked to rate from 1 to 5 the following sources: newspapers, specialist magazine, the internet, colleagues, professional/trade associations, contacts/friends. The internet was listed as the most important source with 71 respondents giving it the highest score of 5. This was significantly higher than "colleagues" which came second with 42 respondents, giving it a score of 5. The final structured question on the survey asked respondents a series of questions about their confidence in using the internet, their view of how their competitors were using the internet and the extent to which they thought they required help to find information on the web. A clear message emerged from respondents with 58 per cent very strongly agreeing with the statement: "I am a confident internet user and usually find the information I want." The last question invited respondents to describe, in their own words, the types of information they would most like to receive help to find on the internet. This produced a wide range of responses from very specific answers directly related to the sector in which they operated to more general answers, including help with improving their organisation's ranking on search engines, data about competitors and information on business grants.

This survey will be compared in a later section with similar research carried out in the USA, but several conclusions can be drawn from the above results. It is significant that respondents were spending, on average, over two hours a day using the internet during a working day. However, it is more significant that approximately half of this time was spent looking for information. This indicates the importance of the internet as an information resource for small companies; a fact which is supported by the results of question 7 which showed the internet as being the single most important source for respondents in keeping up-to-date with developments in their industry. Although most respondents considered themselves generally able to find the information they wanted on the internet, the survey does not provide any objective measure of how efficient they are as searchers and further research is planned to address this question.

US research

Similar research has been carried out by several consultancies in the US where a range of business types were questioned about how they used the internet with a focus on the time spent searching for information online and the success rate of their searches. The technology research and consultancy firm IDC have undertaken a series of surveys since 2001 with the primary objective of calculating the cost to firms of inefficient information retrieval techniques. Results of the most recent survey were published in 2005 and relate to a 2004 survey of 600 US companies across a range of sizes and operating in four industry sectors: financial services, government, manufacturing and healthcare. Results indicate that respondents spent an average of 9.5 hours per week searching the internet and their own databases for information with 3.5 of these hours wasted through not finding the information sought (Feldman *et al.*, 2005). IDC have also calculated the cost to businesses of not finding information incorporating assumptions about average annual salaries and calculated that this costs an

organisation employing 1,000 people 5.3 million dollars a year through time wasted. In 2001, IDC carried out a similar survey and calculated that in total the Fortune 1000 companies stood to waste at least 2.5 billion dollars a year due to inefficiencies in locating and retrieving information from electronic sources (Feldman and Sherman, 2001).

A larger survey of US information users was carried out in 2001 by the consultancy Outsell which surveyed 6,300 people across 20 different industries (Outsell, 2001). Their results showed a distinct trend of information users moving towards using free sources on the web rather than paid for services. A similar survey by Outsell conducted in 2000 indicated that two thirds of respondents preferred fee-based information to help with decision making, while in 2001 the figure was only half. Outsell's 2001 survey found that employees were spending an average of eight hours-a-week looking for and using external information content, a figure slightly lower than IDC's research and very similar to the survey carried out by the author. The authors of the Outsell research have calculated, through extrapolation of their data across the US economy, that this time spent searching online is costing American business 107 billion dollars a year in wage costs. According to the report's author:

There's a significant opportunity to companies to enable their employees to be more efficient and effective at putting external information to work for them. Most knowledge workers rate themselves as very adept or skilled using online or web-based information products, yet they've received little or no formal instruction on information skills (Outsell, 2001, p. 1).

Again, this research presents similar findings to the author's survey of UK SMEs where most respondents considered themselves confident information searchers. While it would be patronising to argue they must all be wrong, it would be reasonable to assume that the lack of any formal training for most people looking for information on the web offers scope for users to improve their searching skills and general information literacy. Indeed, IDC's research showing that more than one third of the time spent searching for information on the web results in a failure to find the desired information indicates there is a gap between users' perceived and actual abilities. Williams (2003) supports this view with her survey of UK SMEs who use export information as part of their operations. She found that many companies confused their own experiences of working in an export market with formal market research carried out by experienced market researchers. Further support comes from Bates (2004) who has looked at Outsell's 2001 research and pointed out the contradiction in end-users' answers about their information literacy. While most of the respondents considered themselves skilled information seekers and 62 per cent believed that anything is available on the web, 74 per cent thought it hard to determine what is available online.

Information literacy

Since the mid-1990s there has been considerable talk within higher and further education in the UK of encouraging independent learning amongst students and developing their information skills (Varga-Atkins and Ashcroft, 2004). Oman (2001), however, points out that despite considerable research into information literacy within educational environments, there has been little written about it in corporate settings. Cheuk (2002) is one of the few exceptions and has considered the importance of

information literacy within enterprises. Within this context she provides a useful working definition of the term:

[...] information literacy in the workplace context is defined as a set of abilities for employees to recognise when information is needed and to locate, evaluate, organize and use information effectively, as well as the abilities to create, package and present information effectively to the intended audience (Cheuk, 2002, p. 2).

However, Cheuk's research indicates that many company employees lack these skills and the effects can be very damaging to organisations working in information-intensive sectors. She points out that a number of knowledge management projects fail, despite large sums of money being invested in them, because employees lack the basic information literacy skills to use these systems to find and then utilise the information they contain. Her experience is that many employers expect higher education (HE) to provide graduates with these skills and that HE institutions are not doing this. Based on her own experiences as an information manager, Oman (2001) has a similar view:

I feel a degree of responsibility in ensuring the knowledge workers or my organization have the fundamental skills to deal with whatever knowledge management technology and processes are adopted by the company. Through my research I have come to understand and appreciate a concept I consider to be of even greater importance than knowledge management – and that is information literacy (Oman, 2001, p. 33).

Although little research has been conducted into information literacy within the workplace, more has been done within HE, particularly within business schools. Wu and Kendall (2005) point to research that has been done in the US and argue that developing information literacy amongst business students is becoming a higher priority for colleges. The authors' experiences of working within a business school library and research carried out amongst faculty and students indicate that the information literacy of students can be improved where the teaching faculty work closely with business reference librarians. Feast (2003) supports this view from her involvement with business students in an Australian university and believes academic staff should be encouraged to work more closely with librarians when developing courses. Varga-Atkins and Ashcroft's (2004) research into the information literacy amongst business students at two UK universities does not provide good news for their future employers, with three quarters possessing inadequate information skills based on a series of basic tests.

Financial implications of information illiteracy

The evidence presented above indicates that the issue of information literacy within the workplace is of growing importance, as business leaders and educators express increasing concern about the need for workers and students to be able to navigate the multiplying streams of information available over the internet. UK public policy has focused on developing the technology skills of workers and encouraging companies to engage in e-commerce and utilise broadband internet connections. Little attention has been paid to helping people better understand how to find and then use the information that these technologies provide access to. According to data from the media regulator, Ofcom, 61 per cent of all UK SMEs had a broadband internet connection at the end of 2005 (Ofcom, 2006). Research from the DTI's Small Business Survey indicates that in

2004 56 per cent of all SMEs used the internet for research (DTI, 2005). A survey of UK SMEs by the author showed that respondents were spending on average over one hour a day looking for information on the internet and that the internet was their primary source of information for matters relating to their business. Using the following data points and assumptions it is conservatively estimated that £3.7 billion is spent by SMEs in the UK on time wasted looking for information that they cannot find (see Table I).

From the data points given in Table I, only those SMEs with broadband access are included in the calculation to remove those companies that do not use the internet. This underestimates the total number of SMEs that use the internet, as a significant minority use slower dial-up access. It also assumes that only one person in each of the SMEs with broadband uses the internet to look for information. This is clearly an underestimate of the actual figure, as in many broadband-connected SMEs with between 100 and 249 employees it is quite likely that more than one person searches the internet. The hours spent searching per year is extrapolated from the author's survey where respondents indicated their daily use of the internet for information searching. The yearly total was arrived at by assuming a five-day working week and a 48 week working year. This figure for time spent searching is approximately 20 per cent less than Feldman *et al.*'s (2005) estimate from their 2004 survey of US companies and 10 per cent less than Outsell's 2001 survey. The search failure rate of 37 per cent is taken from Feldman *et al.*'s (2005) survey which looked at 600 companies. An hourly pay rate of £12.80 is used in the calculation and is taken from the Office for National Statistics' calculation of the average gross annual salary for all UK employees, assuming a 35 hour working week (Office for National Statistics, 2006). This is probably also an underestimate of the actual hourly rate for most people working within these SMEs. According to the DTI's Small Business Survey, 73 per cent of all SMEs have no employees with most of these being limited companies or partnerships where there is an employee/director (DTI, 2005). Using data from this survey the average annual turnover of each of these SMEs is £60,744, more than double the amount used to arrive at the £3.7 billion figure. If one was to use the actual average turnover figure of no-employee UK SMEs, the total amount of money expended by UK SMEs on time spent searching the internet for information they cannot find would be £8.2 billion.

As with all calculations that combine data from a variety of sources to arrive at estimates such as this, a degree of caution needs to be taken. However, the secondary UK sources used in the calculation are from highly reputable data collection bodies and

Data point	Value	Data point date	Source
UK SMEs	4,276,865	2004	DTI (2005)
% UK SMEs with broadband	61%	2005	Ofcom (2006)
Average hours spent searching on internet per year per respondent	308	2006	Author's survey (conducted in May 2006)
Failure rate of information searches	37%	2004	Feldman <i>et al.</i> (2005)
Average gross annual salary of all UK employees	£23,400	2005	Office for National Statistics (2006)

Table I.
Cost if information illiteracy: data points

the author's UK survey data is corroborated by two similar surveys carried out in the US. As has been shown above, data points at the lower end have been used to arrive at a conservative final figure.

Conclusions

Over the last decade, companies have had to deal with increasing amounts of information coming from a variety of sources. This trend does not show signs of changing in the near future as new ways for information to be distributed and shared emerge. Access to information has, to a degree, been democratised by the emergence of the internet as a cost-effective platform for data distribution. Government policies in the UK to encourage SMEs to engage with new technologies could be argued to have been a success, with most SMEs now enjoying broadband access and many engaging in various forms of e-commerce as both buyers and sellers. However, little attention has been paid to helping these companies with navigating the internet as a source of valuable business information. Most internet users are able to use search engines such as Google to a basic level, but many are not aware of how to refine searches or where to look for information that Google does not point to, such as paid-for sources that provide indexed and verified databases covering a wide range of industries (Ojala, 2002). According to research by Bates (2004), it is often cheaper for companies to pay for access to these databases than waste time looking on the free web. It has been shown above that the cost to UK SMEs of wasting time in this way could be between £3.7 billion and £8.2 billion per year. Bearing these points in mind, it is important that future public policy aimed at SMEs and their use of new technologies addresses this issue. A renowned writer on business issues, the late Peter Drucker, pointed out, in many of the books and articles he wrote, that an effective information management strategy was key for businesses that wanted to survive. He was clear that the skills needed to do this required training and nurturing:

Even big companies, in large part, will have to hire outsiders to help them. To think through what the business needs requires somebody who knows and understands the highly specialized information field. There is far too much information for any but specialists to find their way around (Drucker, 1995, p. 8).

Drucker wrote this over ten years ago, before the web had really developed as a valuable source of information for businesses. There is now even more information for business people to find their way around and the need for improved skills amongst the workforce is even more urgent.

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Appendix. Survey questions

- (1) *What type of organisation do you work in?*
 - Manufacturing company;
 - Service company;

- Non-profit;
 - Public sector;
 - Other (please specify).
- (2) *How many people work in your organisation?*
- 1-5;
 - 6-10;
 - 11-20;
 - 21-50;
 - 51-100;
 - 100 + .
- (3) *What is your role within the organisation?² (Please choose the role that fits best.)*
- Owner;
 - Director;
 - Manager;
 - Executive;
 - Administrative;
 - Other (please specify).
- (4) *On average, how long do you spend using the internet during a working day?*
- Less than 10 minutes;
 - Between 10 minutes and 30 minutes;
 - Between 30 minutes and 1 hour;
 - 1 to 2 hours;
 - 2 to 3 hours;
 - 3 to 4 hours;
 - 4 to 5 hours;
 - 5 hours plus.
- (5) *On average, how long do you spend looking for information on the internet on a working day?*
- Less than 10 minutes;
 - Between 10 minutes and 30 minutes;
 - Between 30 minutes and 1 hour;
 - 1 to 2 hours;
 - 2 to 3 hours;
 - 3 to 4 hours;
 - 4 to 5 hours;
 - 5 hours plus.
- (6) *On a scale of 1 to 5 (5 being the most important), how important are the following types of information to your organisation?*
- Information about your current customers/clients;
 - Information about potential customers/clients;
 - Information about your competitors;

- Information about your suppliers;
 - Information about your industry;
 - Information about legal issues.
- (7) *On a scale of 1 to 5 (5 being the most important), how important are the following information sources to you in helping you keep up-to-date with the industry/sector in which you operate?*
- Newspapers;
 - Specialist magazines;
 - Internet;
 - Colleagues;
 - Professional/trade association;
 - Contacts/friends.
- (8) *On a scale of 1 to 5 (5 being the strongest), how strongly do you agree with the following statements?*
- I would like help to find information on the internet;
 - My organisation is not getting the most from the internet;
 - I am worried that my competitors are using the internet more efficiently than me;
 - I am a confident internet user and usually find the information I want.
- (9) *In the context of your work, please describe what type(s) of information you would most like help finding on the internet.*

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