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Wilkinson, Sara J., Turrell, Pat and Harbour, Simon 2002, Intranet and internet uptake and usage within UK building surveying practices. A user based evaluation of advantages and disadvantages, in *FIG 2002 : Proceedings of the 2002 International Federation of Surveyors Conference*, [FIG], [Washington, D. C.], pp. 1-9.

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Intranet and Internet Uptake and Usage within UK Building Surveying Practices. A user based evaluation of advantages and disadvantages

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Key words:

ABSTRACT

The 'single most important technological discovery since the birth of the p.c.', (Gates, 1996). The swift increase in Internet utilisation within businesses and surveying has changed working methods within UK based Surveying practices. User numbers expanded rapidly since the early 1990's and estimates place a figure of 150 million internet users globally (www.Yahoo.com, 2000). Sloan and Kee Low (2000) established that 'e-commerce' is a revolutionary way of trading and conducting business activities. There are opportunities for surveying practices including, reducing communication time, increasing revenues from new and existing sources, enhanced client satisfaction and competitive advantage (Cronin, 1996). Others (Dixon, 1998) perceive threats, such as 'disintermediation', to the traditional role of the surveyor.

This research examined the levels of internet and intranet access within the UK Building and Quantity Surveying practices and corporate firms to establish how the internet has affected working methods and client requirements. The research method comprised a qualitative approach using an email and postal questionnaire survey of a random sample of practices. The questionnaire findings formed the basis of semi structured interviews conducted with senior management of large practices to gain a deeper understanding of the issues identified within the survey.

Data analysis revealed the traditional role of the surveyor as a broker of information may be under threat in the long term. Generally levels of internet access in the sample exceed that of general business levels (Dti, 2000) with the largest growth pre 1997. The perceived advantages and barriers to Intranet and Internet usage were identified by the research.

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1. INTRODUCTION AND RESEARCH RATIONALE

Just over 30 years ago the first network was set up linking four American College Campuses using Apranet, by 2000 estimates set the figure of internet users at 150 million users (www.yahoo.com, 2000), an enormous growth rate. Initial use was developed for the US Armed Forces and has led to one of the most efficient methods of communication ever. Clearly the growth of information and communication technologies (ICT) has revolutionised the way of conducting business through the electronic medium known as electronic or e-commerce (Sloan and Kee Low, 2000) in a global market where 'anybody can trade with anybody' (Berners-Lee, 2000).

As part of the business world, the property and construction industry has experienced and a rapid take up and usage of email and e-commerce after a slow start in the early 1990's (Dixon, 1996). 1997 usage was estimated at 80% RICS members using a pc, with a fifth starting use in 1995 (RICS, 19). 30% of RICS members use email and 23% use the internet. A third of RICS practices had a web site in 1997 with a further 25% planning web site construction within a year. Overall all uses of internet and intranet are increasing within the property profession. Compared with the wider business community, a DTI benchmarking survey in 2000 revealed that 73% of all UK businesses viewed the use of internet and intranet as very important to their competitive position in 3 years time, which was higher than other European countries bar Sweden (74%). The driver for usage was the competitive advantage gained from usage.

How do property professions use the technology? Finch (1996) stated internet use focuses on communication, research (disseminating and collecting information), publishing and marketing. Dixon (1998) claims the information is either static, i.e., not changing with high validity, or time dated i.e. the information ages quicker or, finally fluid such as pricing information. Email is the most popular use of the technology (Cairncross, 1977) within the property profession, however another advantage is that bulky documents can be sent easily and quickly using email. Hosting, making information available on the internet can speed up project design and is another advantage (Khatri, 2000). Finally the profession is able to find information to meet a diverse range of needs such as CPD, property databases, e-journals and white papers on legislation.

In what ways do businesses perceive the value of e-commerce? Cronin (1996) believes there are three ways in which businesses value the Internet. Firstly, the reduction in communication times also cited by Ellsworth et al (1996). Secondly the increased revenues from existing and, or new sources and finally, intangible benefits such as increased customer satisfaction and enhanced competitive advantage. Dixon (1996) perceives the benefits to property and

construction through increased business activity using email and the world wide web (www) which facilitates increased levels of marketing and research.

Given the range and increase in usage, what is the impact on property profession? According to Dixon (1998) impact is centred on two areas, work practices in which organisational structures may change. Secondly, the property market itself and occupier / client requirements may alter (Dixon, 1998). Cairncross (1997) believes location may not be so relevant in future because businesses communication electronically but that the effects should be considered medium to long term and not immediate.

With any innovation, there are issues for businesses to consider, according to Gates (1996), determining the priorities for implementation is critical and the wrong decision may result in significant expense. Dixon (1998) confirms that strategies need careful consideration especially with respect to suitability. However there has been an irreversible shift in the economy from the firm to the network (Tapscott, 1996) and the use of paper as an information medium will diminish (Gates, 1996).

Barriers and concerns also exist especially with regard to confidentiality and security of information (Sloan and Kee Low, 2000). Cook (2000) identified issues such as the legality of contracts issued via the internet to be a market barrier. Some evidence suggests, some professionals may be concerned that the internet may change their professional role as information broker because of increased levels of information available on the net (Dixon, 1998). This has been termed 'disintermediation'. However how widespread is this fear, and what do UK Surveyors think about the impact of the intranet and internet on their professional services?

This research aim was to gain a deeper understanding of the ways in which UK Building Surveyors use the internet and intranet in their working lives. The research objectives were to ascertain uses of the internet; to determine current levels of usage within the research population; to evaluate industry views regarding usage of the internet and finally; to investigate the benefits of internet usage for Building Surveyors.

2. RESEARCH METHOD

Clearly this is qualitative research, as it shares the three assumptions of qualitative research posited by Patton induction, holism and naturalism (1980). That is to say, the research is inductive, in that the researchers had some ideas about how the internet was being used but as the research progressed these ideas developed. The holistic element is derived from examining the whole picture regarding Surveying practice and internet usage. Finally the naturalistic aspect of the research comes from investigating the issues in their naturally occurring environment, the surveyors workplace.

The initial stage involved a literature review of primary and secondary sources to establish what had been written about internet and intranet usage within property, construction and the wider business world.

In order to generate externally valid research, the researchers had to consider the research population (Robson, 1993 p 135, Naoum, 1996). In this case, the size of the UK surveying profession with over 200,000 members of the Royal Institution of Chartered Surveyors (RICS) meant that sampling had to take place. Using the RICS member database, disproportionate random sampling was utilised to generate the research population from three groups, Building Surveyors (BS's), Quantity Surveyors (QS's) and corporate firms. According to Robson (1993, p138) disproportionate random sampling can be useful where there is unequal weighting because it allows the researcher to oversample a small but important stratum. The population is divided into strata, or faculties within the RICS, where particular characteristics are shared i.e. being a Building Surveyor. The method provides a probability sample, (Robson, 1993 p137), where statistical generalisation can be drawn from the sample surveyed.

A survey questionnaire was the best method of meeting the first two research objectives of ascertaining uses of the internet and to determine current levels of usage within the research population. According to Naoum (1996) questionnaires enable the researcher to ascertain what, when and how something is happening in the subject area. Due to high geographic coverage questionnaires also offer high validity (Naoum, 1996).

A questionnaire was developed following best practice identified by Naoum (1996) and others (Robson, 1993, De Vaus, 1996). Simple questions were posed to achieve the highest potential response rate and answers that were easy to analyse. The questionnaire was piloted and examined for bias or leading questions by an independent researcher.

The questionnaire covered the following aspects of the topic, the organisation's size, location, usage of p.c's, presence of network facility, IT strategy and use of IT. Current use of email and rationale for email use was asked, along with questions relating to use of the web. Questions focussed on reasons for, and benefits of, using internet and intranet within the organisation and also any barriers to usage. The questionnaire asked whether a company web page existed and when it was established.

To meet the third and fourth research objectives, to evaluate industry views regarding usage of the internet and to investigate the benefits of internet usage for Surveyors, two semi-structured interviews were conducted with senior professional personnel with a medium and a large UK Building Surveying practice. Information generated from the survey was used in the interviews. Semi structured interviews enabled the researcher to delve for deeper, richer data relating to internet usage and thereby meet the research objectives (Naoum, 1996, Robson, 1993).

3. RESEARCH FINDINGS

Fifty-one questionnaire responses were received with 24 Building Surveyors, 16 Quantity Surveyors and 11 Corporate companies participating in the survey. Responses were made by principals, partners, directors, IT managers and others. The BS practices comprised 14 small,

5 medium and 5 large practices. The QS practices comprised 12 small, 4 medium and 1 large practice and the corporate responses were from 3 small, 3 medium and 6 large companies. Out of the 51 respondents 27 small companies, 12 medium and 12 large companies. Over 60% of respondents operate out of more than one office.

3.1 Access

This research found that 100% of the sample had some access to IT, an increase on the RICS survey data (Sloan and Kee Low, 2000). Although over 53% of the organisations had an IT strategy, corporate firms were more likely to have an IT Strategy. Separate IT departments were found in large practices or corporate firms only.

High usage of email was recorded with 96% having access and 76.5% being frequent users. Confirming earlier studies, communication was the primary use (81.7%) and the most important factor regarding introduction of email was speed and efficiency.

98.1% had access to the web, with 74.6% using the web mainly for research, and over half using the web for marketing. Only 35.1% had a formal access policy and again, the corporate firms had greater access. Firms were concerned about misuse of the internet with one firm encrypting transfer files to prevent misuse of emails.

The Building Surveyors were more likely (84%) to have a home page than the Corporate companies (53.8%) or QS's (73.4%). Most growth in home pages occurred prior to 1997, possibly reflecting a rush not to get left behind within the profession and as one respondent commented "we joined because everyone else did".

Intranet usage was less common (31.4%) with the corporate companies leading the sample (44.3%) by some way (BS 12.4% and QS 10.8%). Primary use was to link UK sites and was driven by IT departments citing reasons of increased efficiency, reduction in transfer time and costs.

When compared to Dti research this study showed differences between general business and surveying professionals and is illustrated in table 1 below.

Table 1: Comparison of IT usage between business and surveying

	Dti (2000)	Surveying Professionals
Email used	68%	96%
Internet access	80%	96.1%
Intranet access	51%	31.4%
Home page	66%	84%

Apart from intranet access the surveyors in this sample have a higher usage and access to internet and email than business generally, and therefore there is a willingness to embrace IT with surveying work practices.

3.2 Usage within the Property Profession and Impact on Work

Both interviewees revealed that internet access had evolved from existing IT provision. The reasons for developing a home page were found to be marketing benefits and the fear of being left behind in the technological revolution.

Current research revealed that firms are sceptical of using the internet for online contracts because of the nature of the product being used, the relative complexity of the transaction process, the need for face to face contact, and confidentiality over data. As one respondent confirmed, “many feel the use of the internet for contract documentation is still a grey area”.

3.3 Impact of Internet Usage on Work Practices

The impact of email on the way professional surveyors’ work has been considerable and “is growing daily”. The reason for use is to increase efficiency and with many practices it is common practice to send drawings via email.

Significantly, at present the survey revealed that these surveyors do not believe their role as information broker is under threat, and that, “it does not threaten professional services offered”. In the short term they do not think the internet will impact on location and occupancy of businesses. However it must be stated the role of the real estate surveyor buying and selling property may face more of a threat in this respect and this survey did not sample these surveyors. The issue of disintermediation was explored and the results reveal that these surveyors perceive their role shifting over the medium term period to that of information manager and interpreter.

Interestingly, although 96% of respondents used the internet only 51.97% stated they felt the internet should be used to maintain competitive advantage. It is possible to assume that usage is so commonplace that the advantages in having internet access *per se* no longer holds.

3.4 Drivers for Internet Implementation

The critical success factors for promotion of use within surveying practices were shown to be; involvement of all staff; the existing IT culture of the practice; support from senior management; and the formal IT strategy. For example some practices require all written internal communications between staff to be on email which encourages usage of the technology and is an example of a positive culture for IT. Management support comes in the form of financial backing and promotion of staff training with one respondent stating “it is essential that surveyors receive adequate IT training”. The size of the organisation affects the rankings of these critical success factors, with the corporate firms rating an existing IT strategy and a formal IT strategy higher than the smaller BS and QS practices.

Within the sample some interesting aspects about internet usage were revealed. Training and education is important with some practices holding ‘cyber lunches’ whereby staff receive IT

training. Not surprisingly, practices need ‘drivers’ to push forward change and in some practices resistance against change has been experienced. An important aspect of IT success is to involve the whole business and not just specialist individuals and IT personnel, and also to ensure regular updating of the Home Page takes place.

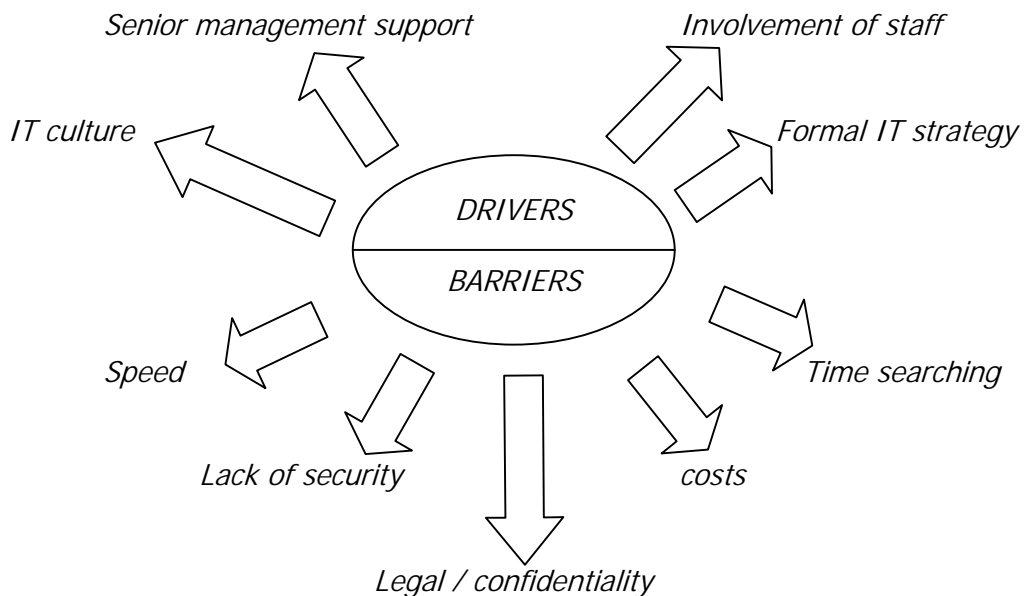
3.5 Barriers to Internet Implementation

The barriers to internet use were found to be speed, lack of formal security, legal and confidentiality issues, and costs. Other minor issues cited by respondents related to ‘time wasting’ and ‘time consuming’. The Dti studies (XXX) found some internet systems run at slow speed especially where no formal link is in place, such as ISDN. Security of information is a significant concern, although the introduction of encryption files or a ‘fire wall’ can overcome such issues and one respondent did state that in his opinion “security problems are very overrated”. Some respondents mentioned the misuse of the internet by staff, although the type of misuse referred was not explained.

Respondents who do not have internet access were more likely to be concerned with costs of the systems, legal and confidentiality issues than those companies who have internet access. This indicates either a lack of awareness or misperception amongst these respondents. Some respondents indicated they want their professional body, the RICS, to raise awareness for effective internet use amongst members, especially for smaller practitioners.

The drivers and barriers to internet implementation within surveying practices can be summarised in the following model.

Figure1 Model showing drivers and barriers to internet implementation



4. RESEARCH CONCLUSIONS

In just over three decades working practices have been revolutionised by the usage of information technology, creating the global market where 'anybody can trade with anybody' (Berners-Lee, 2000). There has been an irreversible shift from the firm to the network (Tapscott, 1996) and the use of paper as a medium is set to diminish (Gates, 1996). The UK property and surveying world has experienced a rapid take up in the use of technology following a slow start in the early 1990's. IT usage has focussed on communication, research, publishing and marketing within the profession, with email use and hosting identified as key benefits. Businesses value the internet because of reductions in communication times, enhanced competitive advantage and increased customer satisfaction.

Potential effects on the property profession include changes to organisational structures from changes to work practice and altered requirements of the property market (Dixon, 1998). Barriers and concerns relate to confidentiality and security of information (Sloan and Kee Low, 2000) whilst Dixon (1998) perceives a threat to the role of the surveyor as an information broker.

This research has shown that there is high usage of internet amongst the sample, higher than previously found in surveying practices and higher than UK businesses generally. Over half the sample have an IT strategy with corporate firms more likely to have separate IT departments. Access to internet was high, with speed and efficiency cited as reasons for use. There are some areas where usage is not considered appropriate (contracts for example) where legal and confidentiality issues need to be addressed. Impact has been significant in use of email as a medium for forwarding information and drawings.

Currently the surveyors in the sample do not feel their role as information broker to be under threat in the short term but consider a greater role may develop in the medium term as information managers. Critical success factors or drivers for IT implementation were found to be staff involvement, formal IT strategy, IT culture and management support. The barriers to implementation were revealed to be slowness of some systems, lack of security, legal / confidentiality issues, time and cost of usage. Some of these barriers can be overcome by education and training.

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