

## The Effect of Global Information Systems on Business Vision and Values

Neil McBride and Simon Rogerson

Centre for Computing and Social Responsibility  
De Montfort University

### Abstract

Large corporations have been running internal global information networks for many years. These have given companies such as IBM a significant business advantage but have not offered any real challenge to the way businesses work. Nor could they be considered to offer new markets or a significant social force.

The rapid growth of the Internet has provided the potential for new markets and has become a technology that may have significant social effects. The Internet is growing at 20% a month. It provides a new service that has not previously been available: almost instantaneous communication anywhere in the world and access to a world-wide information base and a world-wide market. Businesses are seeing access to and involvement with the Internet as mandatory. A record store on the Internet is enabling the purchase and downloading of music from the store to the home personal computer. Bookstores have substantially increased sales using the Internet. Toy stores, department stores and supermarket chains have set up on the Internet. This poses a significant long term threat to existing businesses. High street stores face an estimated loss of 20% of their business to electronic shopping. Telecommunications companies face a long term threat to their profitable international services from the ability to send voice data over the Internet to internationally for the cost of a local telephone call. Shopping at international fashion centres such as Paris is already possible as an on-line service.

As increasing numbers of commercial operations join the Internet this will have a significant effect on the nature of what has been primarily an open and free service used by educational establishments and some government organisations. A recent survey showed that 51% of Internet accesses are currently from educational establishments and that university students make up 26% of Internet users. Increasing commercial users may result in a loss of the perceived freedom that the Internet offers its users, an increasing level of charging for services and a rapidly changing user population.

However, while commercial users will change the nature of the Internet, they will in turn be changed by the presence of new commercial forces. This paper identifies some of the issues facing businesses as they consider involvement with the Internet. Changes in the nature of businesses, an increasing identification of commercial organisations by image, not location, a reduced advantage for the large corporations and increased export trade for small niche companies provide strategic challenges to businesses. The Internet also raises some significant ethical issues in terms of the lack of legislative control, the lack of security and concerns about the reliability of vendors who operate on the Internet and the quality of information being disseminated about goods and services. Proposals to change UK libel laws so that Internet operators will no longer be held responsible for the material they carry will further reduce legislative control.

Such concerns need to be carefully thought through. While, in the hurry to provide Internet services, some companies may get their fingers burnt, the increasing commercial returns from the use of the Internet suggest that its development is unstoppable. Therefore researchers will have to develop strategies for dealing with the ethical and business value issues associated with its use. This paper outlines some of these problems and identifies some underlying contextual and cultural issues.

## 1 Introduction

In the last five years, a computer network whose initial purpose was to promote communication amongst scientific users has become a social phenomenon. Press coverage of the Internet has become ubiquitous and frequent. An estimated 30 million people world-wide regularly access the Internet and use the World Wide Web (WWW) as a source of information (Economist, 1994).

While the exponential growth of the Internet makes statistics unreliable, it is estimated that 30% of UK businesses now have a connection (Taylor, 1994). Growth rates of between 10 and 20% per month are cited and it does not seem unreasonable that a user population of 100 million should be attained within the next two years.

More and more organisations, recognising this potential growth, are seeking to use the Internet for marketing and sales. By 1997, some 100,000 companies may exist which run their business exclusively through the Internet (Taylor, 1994). While actual trade over the Internet is low in comparison with the user population, several companies are working to develop secure forms of electronic cash which will enable transactions to be carried out exclusively over the Internet. This, together with initiatives such as Microsoft's provision of network access software with Windows 95, suggests that this global information system is viable in the long term.

The increase in Internet use has been influenced by the commercialisation of the Internet, the level of media coverage, the low cost of access, and easier interfaces. It can be argued that underlying these effects is the changing social interpretation of the Internet. The Internet is considered to be at the leading-edge technology. There is a growing acceptance that if a business does not join the Internet very soon, it may be out of business by the year 2000 (Widdifield and Grover, 1995). Such a statement may be seen as hyperbole, but the social meanings attached to the Internet do serve to accelerate its growth, although they may not be fully justified. The technology of the Internet is not new. Neither is the Internet guaranteed to be a successful conduit for business.

The rush to get on to the Internet may be driven by perceived competitive pressures, by Internet enthusiasts who act as champions within their firms and encourage the development of Internet links and by the growing media coverage. There appears to be insufficient consideration of the value of a presence on the Internet, the problems that may be encountered or the effect on the organisation.

The presence of an increasing number of commercial organisations on the Internet may change the nature of what was primarily a tool for the scientific and academic community. Equally, the businesses that attach themselves to the Internet may find that exposure to a global information system has consequences for the way they operate, and the vision and values that drive them.

This paper identifies some of the business and ethical issues raised by the explosive growth of the Internet. Its aim is to provide an overview of the issues that should be addressed by IS researchers and practitioners. The initial results of a survey of UK businesses which have an Internet presence are used to illustrate some of the concepts.

## 2 The Internet

arabic1

page \\*

Deleted: page \\* arabic1

The Internet is a world-wide network of some 3 million computers connected through public links. Through the use of a standard communication protocol and a uniform approach to addressing these computers, links can be established between any of the computers and data transmitted. Two primary services are supported on the Internet: electronic mail (email) and the World Wide Web.

Electronic mail enables rapid communication between two people located at different computers. Messages can be transferred from one mailbox to another within minutes or hours and at little unit cost per message. Computers within the Internet support mailservers which control the routing of mail between computers. Furthermore, some sites support newsgroups, mail locations through which people with similar interests can communicate. Messages placed with these usergroups are available to anyone who wishes to access them. Alternatively, people with similar interests can subscribe to an interest group. Here messages are sent to a central mailbase where they are forwarded to all members of the interest group. Some of these groups are moderated. This involves a level of self-censorship by the group members, in which freedom of speech is to some extent sacrificed in order to increase the quality of the material available on the newsgroup.

The World wide web is a linked collection of hypertext documents. Written in a common language (Hypertext Markup Language, HTML), the documents are transferred between servers and clients using a standard protocol (Hypertext Transfer Protocol, HTTP). An organisation with access can publish Hypertext pages containing text, pictures, video, and interactive forms for customer responses. These are accessible to any Internet user by specifying the unique location of the first page using a Uniform Resource Locator (URL). Such documents contain highlighted links which access further pages. By moving from link to link, information can be retrieved and ideas followed. For example, by following these links, one might start with information about the City of Chester and end up at the Australian Botanical Gardens.

### 3 The Survey

In order to gain an idea of how business perceive the Internet and the ways in which businesses are approaching it, a pilot survey was emailed to some 90 UK businesses. Businesses were selected by searching commercial sites including Digital Realms and Britnet. All the businesses approached had a home page, either self-generated or built by a web-authoring consultancy.

Questionnaires were sent by email. This allowed for a rapid response. In some cases responses were received within minutes of the questionnaire being sent out. Most responses were received within a couple of days. Questionnaires were sent out individually to businesses and where appropriate tailored to suit the recipient. Some questionnaires contained extra questions specific to the business being addressed.

Some 37 businesses responded. Questions were designed to be open-ended and to allow the respondent to comment as he or she felt appropriate. The aim was to explore perceptions of the Internet, rather than to build up statistics of Internet usage. The latter is well-covered by other researchers (Pitkow and Reeker, 1994). Responses ranged from terse, one-word responses to more extensive discussions.

Data from this survey is used where appropriate to illustrate some of the issues being discussed. In the UK, business use of the Internet is in its infancy. Few businesses had had a home page for more than a year. The impact of the Internet on these businesses is difficult to assess at such an early stage.

#### 4 Commercial Organisations on the Internet

Commercial access is found in a variety of forms. Some businesses were provided access by university departments. For example, at one university, a department of land management provides a home page for a land surveying company. Some organisations run their own servers, while many others use facilities provided by one of more than 55 Internet Access Providers (IAPs) such as Demon and Pipex.

##### 4.1 IAPs and Authoring Companies

IAPs offer Internet connection, a home page, and software for accessing home pages, and often charge for usage time. A small business may pay, for example, £10 per month for Internet access through an IAP such as Compuserve, plus a fee of £300 to a Web author for the development of home pages. The services required by users may range from a basic connection to a full authoring, page maintenance, and email forwarding service. Some customers of IAPs do not actually have a computer and are using the IAPs to provide an advertising service.

IAPs and Authoring companies, together with consultancies and providers of connection software, form the growing Internet services industry. These serve a range of businesses varying in size from individuals operating at home to large multinationals. While individuals and small businesses tend to pay for authoring and connection services, large organisations often develop in-house Internet skills and run their own connections.

##### 4.2 Small Businesses on the Internet

The small businesses involved can be divided into two types. Firstly, there are the businesses whose skills are computer- or technology-related and for whom a presence on the Internet is a natural extension of their activities. These tend to be software houses and providers of computer services. Their businesses are already technically-based and involve considerable amounts of computer work. The senior staff are computer-literate and are champions of the Internet. Businesses of this type are mostly, but not exclusively in the computer industry. One example of a business which is computer-literate is an architectural practice whose work is strongly Computer Aided Design (CAD) based. It has made extensive use of the Internet to promote its technology-based practice to a computer-literate audience.

The second category of small businesses includes those that have no particular computer skills or interest in computing. These businesses cover areas such as personalised tailoring, travel services, hand-made crafts, wholesale wine supplies and even laundry services and hairdressing. Their presence on the Internet tends to be more opportunistic, arising from business contact with IAPs, collaborations with other business partners to form a consortium with an Internet connection, or the use of the services of an Internet business provider such as the London Mall or MarketNet. One example of this category of business is Shetland Knitwear Associates, a co-operative of small knitwear producers, often individuals, working from home. Following the production of a catalogue, with the aim of selling knitwear to individuals world-wide, they have produced a home page in cooperation with a local IAP.

##### 4.3 Large Organisations

Large organisations such as retail chains, car hire firms and accountancy firms perceive Internet connection as demonstrating that they are a leading-edge company. They develop Internet skills in-house

and may run their own sites. Although some large companies get service providers to set up sites for them, those that set up their own site may spend more on their Internet connection in terms of staff time, software and hardware than a small company. Large organisations may have a greater concern over the security aspects of the Internet, going as far as to purchase a separate machine to act as a firewall, and may run a separate server for Internet access.

## **5 Business Uses of the Internet**

The business uses of the Internet can be roughly divided into three: Internet support services, sales of goods and services and marketing.

### **5.1 Internet Support Services**

Internet support services are IAPs and consultancies that provide access to the Internet and the development of HTML documents. Companies in this sector which responded to the survey were small, often one-person consultancies or small software houses moving into the Internet consultancy business. Inevitably, this group was optimistic about the potential of the Internet and were actively promoting an Internet culture.

### **5.2 Sales of Goods and Services**

The sale of goods and services is presently limited by aspects of security and trust. Although Widdifield and Grover (1995) suggest that adequate data security solutions based around encryption are currently available, businesses are reluctant to carry out transactions over the Internet. Efforts are being made to develop forms of digital cash such as Digicash or Cybercash (Economist, 1994), but until a standard form is adopted, the actual transactions will still take place over the telephone or by post. Furthermore, the reliability of a vendor on the Internet may be difficult to assess since the Internet offers an opportunity for fraud on a grand scale.

Two types of sales may be identified on the Internet. Firstly, there is the sale of information, where the product being bought and sold can be transmitted over the Internet. The products may be information services accessible by subscription or information retrieval services which provide access to browsers. The Internet offers software companies the possibility of distributing software directly to the customer's computer. However, none of the software companies questioned were doing this.

Secondly, there is the sales of goods and services in which the Internet provides the means of carrying out the transaction, while the goods or services are delivered by other means. Most commonly, this is done through electronic mail order. Mail order catalogues can be displayed electronically and goods ordered over the Internet. It should be noted that this represents no more than the transfer of existing ways of doing business to the Internet. It does not involve new approaches, or ways of providing an improved service to the customer which are suggested by the new technology.

### **5.3 Marketing**

Many respondents saw the Internet as a marketing tool. Even in the case of some software houses, the use of the Internet for transactions or the distribution of software was not being pursued. One software company, Question Mark Computing, offers users an opportunity to test-drive software, but sees its Web site as primarily a marketing tool.

The use of a home page was seen as a cost-effective way of marketing. For several organisations, including a hotel, a management consultancy and a software house, this was the prime purpose of their Internet presence.

## 6 Reasons for Joining the Internet

Companies were asked to comment on why they had joined the Internet. The following were the main reasons cited:

A presence on the Internet demonstrated the technical competence of the business and showed that it was keeping up with technology.  
The Internet is a marketing tool. This is particularly valuable for a small company, which is specialised and has a global market.  
A presence on the Internet would provide good publicity.  
The Internet is a new and fast-growing medium which provides a new place for displaying product catalogues.  
Business over the Internet will become the norm.  
The Internet provides ease of access to clients and partners, particularly internationally.  
Internet access and advertising provides another use for existing computer equipment at little additional cost.  
The Internet provides an opportunity to promote software globally.  
Using the Internet for business is cheaper than buying a retail premise.  
The company's target audience is multimedia specialists who are likely to be users of the Internet.  
The Internet provides a new medium for conducting market research.

The reasons given suggest that businesses are acting on their perception of the nature and value of the Internet rather than on any objective analysis of its benefits and risks. One respondent commented on the *'desire to show that the company has the right stuff on the technical level'*. Another respondent cited a *'belief that the Internet will have the same growth over the next few years that cellular telephones experienced.'*

The reasons for connecting to the Internet are often based on popular views disseminated by newspapers and magazines, television and verbal grapevines. Businesses which procure Internet access speculatively may find that the benefits to be gained from it are limited. There is the possibility that Internet connections procured by some businesses will fall into disuse in the same way that early purchasers of PCs lost interest in those boxes which then gathered dust on shelves.

Statistics on the actual nature of the Internet user-base and market opportunities are hard to come by. One of the major problems that faces businesses that attach to the Internet is that of market research. It is difficult to know whether there is an audience on the Internet suitable for a company's products. Some businesses are finding that the large number of accesses to their home page does not reflect a genuine interest in the business's products. One respondent, a professional photographer, observed that some 5000 accesses of his home page over three months had not resulted in a single telephone call or any new business.

It should be recognised that technology such as the Internet is embedded in social processes and is shaped by both technical and social forces (Spender, 1995). We must examine the nature of the audience for Internet services and look at the power relations between the involved actors.

## 7 The Internet Audience

Surveys of Internet users suggest that half the use is from academic establishments and half is commercial. The audience is predominately male - up to 90% according to some surveys. However, an NOP survey of Internet usage, conducted face-to-face (NOP, 1995), found that, of those interviewed who said they had used the Internet, one-third were female.

While the increasing commercialisation of the Internet may encourage female users, the Internet culture is still male-oriented. Popular magazines associated with the Internet seem to be male-biased in the subjects they treat and in their advertisements. Most fan clubs and on-line magazines on the Internet appeal to men, not women, as does the pornography.

Users of the Internet currently need some technical understanding. While access facilities are improving, it still needs a certain mindset to pursue the opportunities provided by the Internet. Indeed, the computer-illiterate may to some extent feel out of place faced with the task of learning the technical jargon and using screens peppered with acronyms. The Internet may develop into a technical ghetto, catering to the tastes and culture of a small section of the general public, excluding large sections of society by high charges or cultural bias.

Access to the Internet may be affordable for business, but for a private user the necessary outlay of about £2000 (for a multi-media PC, modem and connection fee) plus about £120 a year for usage fees may seem high. However, since certain sections of the UK population on low wages are prepared to buy satellite television, they may also wish to pay for Internet access.

The affluence of the current users may be reflected by the types of retailers who advertise their wares on the Internet. They tend to be either up-market stores selling designer clothes, expensive gifts and handmade toys, or technical companies selling computer software and hardware and technically-oriented books.

It may be argued that the Internet is currently American-dominated. Like Hollywood, it can be seen as a means of spreading American culture. There is no room for developing countries and take-up in Asia and Japan has been slow. Some UK companies see the Internet as providing access to the American market. They find that a majority of the enquiries received are from America. One respondent suggested that people accessing his page seemed to '*reside in Idaho and look at it at about 3.00 am London time...*'

## **8 The Benefits of the Internet**

Since business use of the Internet is a recent phenomenon, few businesses are in a position to assess the costs and benefits of Internet access. A firm usually invests in home pages and connections because Net-aware managers or other staff persuade it to do so, believing that benefits will follow.

Respondents were asked to identify some of the benefits they expected from Internet attachment. These represent expectation. The benefits cited related principally to marketing and cheap communication:

Access to global information systems provides cheap communication through email.

Documents may be transmitted cheaply.

International communication with customers and suppliers is facilitated. The Internet provides a cheap infrastructure establishing electronic data interchange (EDI).

Reduced expenditure on newspaper-based advertising, particularly classified advertising, will result from advertising on the Internet.

Deleted: page \\* arabic1

page \\*

| arabic1

The Internet provides access to international niche markets. Increased sales from customers accessing the company's home page will result.

Success as an advertising medium may be related to the nature of goods being sold. Computer goods, printers and software fare better than photographic services and scientific instruments. For one company selling computer printers and parts, the Internet provides a supplementary advertising medium. Their Internet address appears in computer magazines. Some 30% of enquiries result from Internet. The company has one contact per day and 1 sale per week. This is seen as being twice as effective as other means of selling.

## **9 Contextual Issues**

In order to understand the nature of the Internet and its effect on businesses, it is important to examine the context in which the Internet has flourished.

### **9.1 The Internet has Academic and Scientific Foundations**

The Internet developed from an academic base. This has led its users to expect complete freedom of speech and services provided without charge. While initial funding for the Internet has been provided by governmental organisations, its use and control has not been seen as a matter for governments, but has been left to the professional groups formed by academics.

In this context, the conversion of the Internet to a charge-based service, the withdrawal of government support and the handing over of Internet control to commercial service organisations is likely to meet with some resistance. Several respondents saw the commercialisation of the Internet as an ethical issue.

The use of the Internet has depended to a large extent of the provision of computer facilities by universities and government organisations. The backbone of the network, and particularly the international links, still belongs to non-commercial organisations. Some IAPs direct their traffic through university networks. This is putting an increasing load on those networks. However, the universities are gaining no commercial advantage from supporting Internet traffic. It is likely that as traffic increases, public sector organisations will seek recompense from commercial IAPs for the provision of routes for Internet traffic.

### **9.2 The Internet Has Technical, not Business, Origins**

The development of the Internet has been driven by computer experts in scientific institutes. As a result of this the Internet is viewed as being highly technical and requiring a high skills base. Business managers and non-computer experts have not been involved to any large extent in determining its strategic direction. Technical stakeholders have dominated the Internet. Their interpretation of the Internet as being highly technical has created a barrier to access by non-technical stakeholders. If the Internet had had commercial origins, the same technology may have been viewed differently.

For example, the concept of HTML is in itself very simple, but the technical format of the language makes the coding of hypertext pages look difficult and discourages the involvement of non-technical people. The protection of the Internet by a technical priesthood and the shrouding of the Internet in technical mystery may result in the

distancing of users and the expansion of a market for Internet expertese.

However, it may also be argued that non-commercial nature of the Internet has been key to its growth. The changing context of the Internet caused by its commercialisation will significantly influence its strategic direction and change its social interpretation.

## **10 Cultural Perspectives**

The development of the culture of the Internet and the presence of a wide range of subcultures with different and sometimes conflicting viewpoints is of importance to the understanding of the Internet as a business medium. The Internet does not reflect the general population. It has its own culture which limits the type of markets that are available to businesses. It can be argued that the culture of the Internet is the culture of the specialist and the technocrat.

However, the culture of the Internet is dynamic. It is difficult to say whether the culture will evolve in such a way that it more generally reflects society. It may retain a uniformity of language, style and communication that mark it out as distinct.

### **10.1 The Culture of the Affluent**

It can also be argued that the Internet culture is the culture of the affluent, male American. This excludes many groups. There is poor representation of women and ethnic groups. The poor, the illiterate and the uneducated of the developed and the undeveloped world are excluded. If business is increasingly done over the Internet, then a new electronic barrier is formed against the third world. For example, there is only one server in the entire African continent outside South Africa (Ohajah, 1994). In countries such as Nigeria, communication infrastructure is weak or non-existent, local calls are expensive and telephone systems are often out of action for long periods. Computers are very expensive and beyond the means of individuals and small businesses.

### **10.2 The Culture of the Individual**

Internet culture may be described as that of the individual. The Internet surfer is seen as a loner, sitting at a computer and travelling from page to page. The use of the email can be private and one-to-one. While groups can be easily joined, they can also be equally quickly left. Social cohesion on the Internet is transient and responsibility to the group is minimal.

### **10.3 The Culture of the Football Crowd**

The culture of the Internet can also be compared to that of football crowds. There is a male-dominated viewpoint, shared interests and 'in-jokes'. The Internet has its own language. It is also a medium of rumours. Like a Mexican wave, ideas and news can spread easily. Email which warns about a non-existent threat of a computer virus can spread as quickly as a computer virus might.

### **10.4 The Culture of the Secret Society**

The Internet caters for many specialist interest groups. One of its strengths is that its global coverage means that specialist can groups gain a voice. International groupings of shared interests can form which are at once universally available and universally hidden.

A secret group can be joined from anywhere in the world where there is an Internet connection. However, the size of the Internet means that I

must know the URL(s) or email addresses from amongst millions in order to join the group. It should be noted that specialist groups are not entirely innocent. Groups such as neo-Nazis and paedophiles can flourish in an environment where there is little control.

### **10.5 The Culture of Email**

The perception that information superhighway enables me to speak personally to Bill Clinton is brought about by the personal and immediate nature of email. Email has perceived properties of distance and safety. Conflict and controversy are more easily than in face-to-face encounters (Markus, 1994). People will type what they won't say and will be more candid.

While being psychologically safer than telephones, it is also less remote than letters. Email provides a permanent record of a transient conversation. Email on the Internet has its own cultural etiquette. Mail shots are frowned upon as is blanket advertising. Any advertiser who does this is identifiable and will have his server jammed by 'flaming' messages.

### **11 The Political Perspective**

The Internet is not controlled by the law. Its international nature makes it difficult for governments to control messages entering and leaving their countries. There is no licensing act, nor is there any monitoring of the quality of its output. The Internet is seen as a freely available medium on which anyone can express anything.

Increasing business on the Internet carries major problems for governments. Can electronic cash be matched by electronic tax? Should governments implement electronic Customs? What controls should be applied to create and enforce standards of use and acceptability?

The perception that the Internet should be used as a free-market for trade and information carries with it individual moral responsibility. And yet activities such as the sales of Aids testing kits and the traffic in pornography suggest the absence of individual moral responsibility. But any control would change the nature of the Internet. The electronic equivalent of Prohibition laws may not work. Pressure to charge for Internet use and to control its content conflicts with the principle that information is freely available.

### **12 Power and Autonomy**

The use of any information system may change the balance between managerial power and individual autonomy. Organisational use of global information systems is no exception.

#### **12.1 Intra-Organisational**

Many organisations provide PCs to all their employees. Connection to global information systems such as the Internet results in everyone from the managing director to the junior clerk having access to the same information. This may reduce the power base of the senior management and enable anarchic subcultures to form within the company.

New problems emerge, some of which were raised by respondents to the survey. The risk of staff wasting time surfing on the Internet or misusing the Internet link to download pornography was seen as a potential problem by several organisations.

Managers may seek to redress the power balance by restricting access to the Internet. Access to external global information systems could allow culture and values from outside the company to penetrate inside. To counteract this a stronger company culture and a greater sense of employee involvement may be needed.

## **12.2 Inter-Organisational**

It can be suggested that the Internet supports a level playing field of access and exposure to the market. Cheapness of access enables a one-person business to compete with a multi-national. The personal nature of a small business may give it an advantage over a large business whose image on the Internet is more impersonal.

A large organisation may use more resources to develop its presence on the Internet and to promote awareness of its home page. But it may have no competitive advantage over a small business. Furthermore, global communications may enable consortia of small businesses to form, which together have large enough resources to challenge large multi-nationals. Small businesses may increase their power and position in the market through the formation of groupings on the Internet. Cottage industries such as knitters and potters, small consultancies and small professional organisations can form consortia to strengthen their market position.

## **13 The Power of the Image**

It can be argued that the Internet amplifies the power of the image. This may result in an increasing market for design consultants. Companies are increasingly identified by image, not location.

The Internet may enhance the power of the personality. The use of email enables anyone to communicate directly with business leaders such as Bill Gates. The style and personality of the leader may become the image of the company.

The email addresses which are made available through the businesses home page will identify the business's gatekeepers. These people become the spokesperson for the company. The webmaster may provide the front office image of the company. Currently most webmasters are technical people who communicate informally with enquirers on the Internet. As the importance of the Internet grows, large companies may replace these by spokespeople. This was found with one company where the response to the survey was provided by a public relations officer.

## **14 Geography of the Internet**

In surfing the Internet, it is often difficult to differentiate between local and world wide access. A user may start with a local page and find that a new link connects him to Chicago or Oslo. Global information systems reduce the importance of location. The same business can be run from London, Paris or New York. A community of organisations with similar interests may be spread internationally. Such international access should encourage an international business vision. Companies previously restricted to a local market may use the Internet to sell abroad.

The Internet may lead to an increase in specialist companies. Increased export opportunities may support the existence of specialist companies in niche markets which could not be supported by the local market.

There is evidence that the use of the Internet can be equally valuable in strengthening links within local communities. Sites such as Commerce Net, Virtual Palo Alto and Virtual Manchester were formed to encourage a sense of local community. Electronic networks may grow based around real communities or international communities.

#### **15 Internet and the Convergence of Time and Space**

We have seen that the Internet shrinks distances. We should also note the effect it has on time. Companies using the Internet can operate for 24 hours. This could result in extended working hours, changes in the structure of the business week (for example, business deals can be done at 3.00 am on Sunday mornings), and the removal of the distinction between work and home (I can work from lounge, bedroom, or bathroom - wherever there is a computer point.) Constraints placed on activities within time are changed. While the Internet entirely removes limits on the abilities of people to come together and interact with one another, constraints of capability (the need for sleep and a regulated day) and authority (the limits of access to the Internet) still remain.

#### **16 Internet Ethics**

Most respondents answered 'No' to the question 'Do you foresee any ethical problems about being attached to the Internet?' One respondent stated:

'From the point of view of what we upload, and what our users download, we fall back on compliance with the firm's rules. We have strict rules about who can say what and what must be cleared with whom before it can be published ... and we make it plain that the firm's connection is not to be used for personal purposes such as downloading pornography or politically sensitive material.'

It may be that companies will use their own internal rules to control the influence of the Internet. Some respondents mentioned the desirability of freedom of information, and the risk of large corporations such as Microsoft controlling the Internet and reaping big profits, as ethical issues.

IAPs felt that worries expressed by some of their clients, particularly schools, about the problems of hacking and pornography were being hyped up and were not significant. However recent evidence that half of accesses of a search engine were aimed at retrieving pornography and that there is a wide availability of this material (Thimbleby, 1995) suggest that without some moral framework, the Internet, its users and contents will descend to the lowest common denominator.

There is considerable complacency about ethical issues on the Internet. Issues of copyright, hacking and software piracy were not being addressed. Only one large organisation expressed a concern about security. Concern for freedom of information is not being matched by concern for the privacy of the individual.

#### **17 A Business Approach to the Internet**

In terms of the McFarlan and McKenny strategic importance matrix (McFarlan and McKenny, 1982), the Internet may be seen as a possible turnaround system. It has the potential to become strategically important, or to become a factory application through which everyday transactions are done. Whether its role can become strategic depends on the approach to its use as a turnaround system.

Organisations should consider the detrimental effects of the Internet. Some caution is necessary and the widespread use of Internet access

within an organisation could modify organisational culture and reduce organisational cohesion. Social groups may be less strong and the increased ease of implementing teleworking (Frolick et al, 1993) raises a host of organisational issues in itself.

The benefits of Internet access should be defined. Standards and procedures for its control and use should be put in place. Attention should be paid to security. There is a difficult balance to be attained between issues of protecting security, promoting an appropriate moral framework, and protecting copyright; and using global information systems to increase the level of organisational learning and promote knowledge creation within the organisation.

We would make the following suggestions as to a positive business approach to the Internet.

Treat the Internet as an advertising opportunity; do not expect it to replace your existing markets or to become your sole means of business. Use Internet to find people of like mind and of a similar specialism to that covered by the business. Create a home page that is a public service. Add links to other databases/pages within your field - even including competitors. More people will access it as an information source and hence be exposed to your company. Add useful information derived from your own work. Update your pages regularly - perhaps once a week. Use the Internet as a research tool to investigate what others are doing in your field and to find new customers and suppliers. Target communications and literature at specific people named people whom you have identified as being interested in your business. Encourage communication with customers by email. Be open and friendly in your communications and your image. Treat your presence on the Internet as a long term investment; do not expect immediate returns. Develop company procedures and standards before procuring access to the Internet. Carry out a thorough benefits review before embarking joining the Internet and evaluate the benefits at regular intervals once access has been established.

## 18 Business Vision

It seems likely that businesses' vision for their future will be influenced by considerations of the potential of the Internet. The Internet may provide opportunities for new markets, new products and improved communications between companies. However, few companies had a clear idea of what the Internet could do for them or how it might be used. Most businesses surveyed were not taking a strategic interest in the Internet. Their use of the Internet was opportunistic and ad-hoc.

In some cases a presence on the Internet was being used to support the company's image as being a leader of innovation. When asked whether a presence on the Internet would enhance their corporate image, most said 'yes' but did not elaborate on how. One respondent commented, '*Being on the Internet will probably make people think we are corporate whereas we are only corporal and one 'corp.' at that!*'

Access to the Internet may promote an international strategy. It provides easy access to an export market. Small companies can entertain a vision of a global presence. It may be argued that the expansion of the Internet will result in parochial businesses taking on a global vision and developing market contacts across the world.

Global information systems can change the vision of how a business communicates. The use of EDI will increase the speed with which

businesses can respond to their customers. The use of email can promote the personal service provided by the business. For example, logistics companies can use the Internet to support customers in tracking consignments across the world from their origin to their destination. The Internet will provide businesses with a much greater access to a wide range of information than was previously possible. It may result in some companies becoming more knowledge-based. It could also fuel an increased interest in the knowledge-creating aspect of business.

## **19 Business Values**

Companies have been exposed to global communications for a very short time. They have had little opportunity to reflect on how the Internet might affect their values. All businesses in the survey were positive and mostly enthusiastic about the Internet. This is inevitable: businesses with a negative view would not be on the Internet. This exploratory study revealed little information about value changes. Further, detailed case study research will be necessary. Businesses with values such as openness, support of leading-edge technology and the promotion of individual effort and creativity may be most likely to view the Internet favourably. Organisations with a greater emphasis on loyalty to the firm, security, confidentiality and uniformity may be more wary of an uncontrolled global information system.

Global information systems may force businesses to be more information-aware. They may put a greater value on information and knowledge and may take a more global perspective. Conversely, the risks of technology such as the Internet may result in companies becoming more protective of their information assets and being less willing to share information.

## **20 Conclusion**

This paper has provided a Cook's tour of some of the issues surrounding business's presence on the Internet. We believe that, in their eagerness to get on the Internet bandwagon, businesses are giving scant attention to the strategic and ethical issues surrounding Internet access. Businesses should consider the implications of a presence on a global information system. There must be good strategic reasons for using the Internet. There must be procedures, standards and ethical frameworks for its use. Business rules are required which indicate what can be placed on the Internet and what can be downloaded. Furthermore, businesses should be aware of the cultural and political effects of the Internet. Internal relationships amongst employees and external relationships with suppliers and customers may change. There may be shifts in organisational culture. The image of the organisation may be affected for good or ill.

It is too early to have a clear idea of the value of an Internet presence to a business and of the risks involved. It may be that the Internet and related global information systems will become an accepted part of the information infrastructure of every organisation, as common as the telephone. Alternatively, the Internet may degenerate into a restricted technical ghetto, an electronic threat to organisations which forces them to invest in measures to protect themselves from its insidious effects.

This paper has not sought to provide more than an exploratory study of some of the issues associated with business involvement with global information systems. Some issues have been identified from the survey, others are to some extent conjecture. It is clear that this area needs considerable attention from information systems researchers and practitioners. Considerations of ethics, strategy and benefits must feature highly in IS research into global information systems.

There is certainly the potential for global information systems, of which the Internet is the prime example, to have a significant impact on organisations and the way they manage information. Organisations will be increasingly built on information infrastructures which spread beyond the organisation's boundaries. Global information systems, connected to internal information warehouses, may become as essential to organisations as electric wiring is to a building.

#### **Acknowledgement**

We would like to thank Patrick Foster for help in selecting the survey sample.

#### **References**

*Economist* (1994) *Electronic Money*. 26 November 1994.

Frolick, M N, Wilkes, R B and Urwiler R (1993) Telecommuting as a workplace alternative: An Identification of Significant Factors in American Firm's Determination of Work at Home Policies. *Journal of Strategic Information Systems*, Vol 2 No 3, pp 206 -221.

Markus, M L (1994) Finding the Happy Medium: Explaining the Negative Effects of Electronic Communication on Social Life at Work. *ACM Transactions on Information Systems*, Vol 12 No 2, pp 119 - 149.

McFarlan, F W and McKenny J L (1983) *Corporate Information Systems Management*. Irwin.

NOP (1995) <http://www.nopres.co.uk>.

Ohajah, E (1994) Technology: Africa's need to keep in touch. *Financial Times* 22 February 1994.

Pitkow, J and Recker, M (1994) Results from the First World-Wide Web Survey. *Journal of Computer Networks and ISDN Systems*, Vol 27 No 2.

Spender, J-C (1995) Managing a Socially Constructed Technology: The Case of CT Scanning. *Proceedings of the 28th Annual Hawaii International Conference on System Sciences*. Vol 3 p 523 - 532.

Taylor, P (1994) Internet used 'at 30% of companies' *Financial Times* 24 November 1994.

Thimbleby, H (1995) Reported at the British Association for the Advancement of Science Conference, Newcastle-upon-Tyne, September 1995.

Widdifield, R and Grover, V (1995) Internet and the Implications of the Information Highway for Business. *Journal of Systems Management*, May/June 1995, p 16-21, 65.