Is the Interaction Approach of Any Relevance in an IT/e-commerce Driven World?

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Abstract

Since the interaction approach was developed in the early 1980's a number of changes have occurred which have dramatically altered the business environment; the change from manufacturing to services in the more mature economies, globalisation, and the rapid evolution of IT and e-commerce. The development of e-commerce on the Internet is anticipated to have a huge effect on how business is conducted, with predictions that in 2002 e-commerce worldwide will be worth $425bn, with 78% of this figure attributed to the business to business market (Financial Times 13th January 1999b). This research is part of a multi-national project examining all these issues. The aim of this paper is to re-examine the interaction approach in light of the information technology revolution and find out whether it is still a viable model for business to business marketing today. Qualitative semi-structured interviews were performed prior to a large postal survey. Our major conclusion is that although IT has altered the dynamics of the interaction process, with the exchange of products/services/finances and information becoming quicker and easier, the interaction approach is still a viable model for the 21st century. IT has also altered social exchange in the interaction process leading to relationships becoming more impersonal and more formalised i.e. the relationship atmosphere has changed and relationships have become more difficult to manage. Businesses still need to interact, albeit in different ways, interactions remain the heart of successful relationships and successful relationships are fundamental to successful business.

Introduction

Since the early work of the International Marketing and Purchasing (IMP) Group (Hakansson 1982, Turnbull and Cunningham 1981) there has been growing interest in and recognition of the interaction approach and relationship theory. This has stimulated much empirical research relatively recently into the application and development of the basic constructs in the fields of consumer and services marketing. There have been a number of critical reviews of the interaction paradigm (Turnbull, Ford and Cunningham 1996) but no one has challenged the approach in relation to the enormous changes, which are impacting on the business world. This paper will re-examine the components of the interaction approach in light of one particular change, the information technology revolution.

Building on earlier work by Williamson (1975) and their own early research findings, the IMP group postulated a "new" approach to understanding industrial market dynamics (Hakansson 1982). Their fundamental platform was dissatisfaction with the then established or classical marketing approach enshrined in the 4P's. The classical approach presented a transactional view of market exchanges and did not represent the realities of business markets. It was argued that the realities of business markets were more complex and the key elements of successful marketing and purchasing was the establishment and maintenance of interactive relationships (Hakansson 1982). The IMP group also recognised that dyadic interactions are only one part of the business world and that organisations' dyadic relationships are embedded in a wider web or network of interconnected and interdependent relationships. Throughout the 70's, 80's and 90's there have been dramatic developments in a variety of IT applications. The use of these in the interaction process has led to fundamental changes in the way businesses relate to and communicate with each other; in particular, the processes of information exchange have been transformed. It has become increasingly common for relationships in business to business markets to be perceived as being based upon information exchange rather than interpersonal contact (Naudé and Holland 1996). The purpose of the research reported here is to critically review the relevance and robustness of the interaction approach in light of these changes.

1.0 The Interaction Approach and the Impact of IT

– The interaction approach states that "the marketing and purchasing of goods is seen as an interaction process between two parties within a certain environment" (Hakansson 1982). There are four basic elements which make up the model, and IT is impacting on each of them to varying degrees,

1. **The Environment** - Business interactions and relationships do not occur in a vacuum; the environment in which they take place influences them. Since the development of the interaction approach one of the main factors, which has had a major impact on the business environment, has been information technology. It is hard to imagine that it was only fifty years ago that the first mainframe computer was developed, that it was only twenty five years ago that the age of the personal computer was ushered in with the first mass produced computer and that it has only been six years since the Internet arrived on the commercial scene (Financial Times 5th April 2000b). Today there are 400million personal computers in the world. Technological innovation shows no sign of slowing down and developments have led to the suggestion that the traditional personal computer will decline, as mobile devices become increasingly popular. Mobile telephone vendors are increasingly seeing their products impinge on what was exclusively personal computer territory with the advent of WAP (wireless application protocol) which enables

functionality on the move (Financial Times 13th January 1999a, 5th April 2000a). At the beginning of the 21st century digital technology is having a huge impact on how business is carried out and with continuing technological innovation more changes are inevitable.

2. **The Participants** - Information exchange using modern technology is a two way process. Companies' and their employees' application and experience of IT will determine the methods of communication used and how business interactions occur e.g. EDI or web-based interactions cannot occur between companies if one does not have the appropriate hardware or software. With the speed of technological developments are companies utilising them and do they perceive them to be useful?

3. **The Relationship Atmosphere** – Hakansson (1982) stated that the relationship atmosphere is the balance of power-dependence, conflict-co-operation and closeness-distance between the interacting parties. Other dimensions have been suggested such as trust, commitment etc. The relationship atmosphere evolves from the transactions that occur in the interaction process between the participants. In the past the methods of carrying out transactions may have involved frequent face to face interaction often leading to close, co-operative relationships. However with the increasing number of methods of communication available, face to face interactions may be less frequent leading to less close, co-operative relationships.

4. **The Interaction Process** – The interaction process consists of the transactions between the companies which involves one or more of four types of exchange,

i) the product or service being exchanged
ii) information exchange
iii) financial exchange
iv) social exchange

Fundamentally, the exchange of a product/service for money has remained the same since the interaction approach was developed in the early 80's. The product or service being exchanged is generic; all commercial relationships involve this type of exchange. IT will not effect the fact that a product or service is exchanged. However, technology has altered *how* the processes surrounding the basic transaction i.e. advertising, negotiating, selling etc. are performed (See Table 1). IT has increased the number of communication methods available for carrying out these processes. Financial exchanges have been facilitated by information technology; invoicing and payments can be conducted through electronic cash transfer and electronic data interchange (EDI). When product/service exchange, information or financial exchanges occur, social exchanges occur too which will also be affected by IT. The two exchanges which have been most affected by information technology are information exchange and social exchange, both of which are discussed further below.

1.1 IT and the Effect on Information Exchange

Hakansson (1982) defined two types of communication within information exchange, impersonal and personal. Impersonal communication is used to transfer basic technical and/or commercial information. Personal communication is used to transfer "soft" data such as the use of the product, conditions of agreement, general information about either party etc. Hakansson does not state what methods of communication fall under the categories of impersonal and personal communication. Personal communication could be interpreted as face to face meetings and impersonal communication could be interpreted as any other method. Naudé and Holland (1996) believe Hakansson's perceptions are outdated and that

with the recent technological developments, impersonal communication channels are becoming the cornerstones of new strategic relationships.

It can be observed from Table 1 that in situations where traditionally face to face meetings would have occurred e.g. sales meetings and conferences, impersonal electronic methods are being used to perform the same function. Naudé and Holland (1996) also state that IT will enable companies to become more rational in their decision making. In business relationships exchange episodes are ongoing and important in the formation and formalisation of relationships. In the past it was perceived that exchange episodes often became institutionalised with neither party questioning their own actions or the actions of the other party. IT is enabling a move away from the traditional, institutionalised approach to business relationships and allowing companies to access and exchange information more easily. The range of methods which enable the exchange of information to occur are highlighted in the table below. Table 1 illustrates just how wide the impact of IT has been upon business functions.

Table 1: Typical Business Applications of Information Technology (Downey, Boland and Walsh 1998).

Business Activity	IT Applications
Advertising	World Wide Web (WWW), e-mail, and fax with client's agreement
Sales	WWW, telesales (call centres)
Sales Support	Online information services, multimedia
Customer Profiling	Networked client-server databases
Ordering/Invoicing	Electronic data interchange (EDI)
Payment	Electronic funds transfer/electronic cash
Customer Support	Help desks, e-mail, WWW, fax, bulletin boards, online information services
Purchasing	Public online information services, WWW, JIT
Meetings/Discussions	Voice and data calls, video conferencing
Messaging	Voice mail, e-mail, data pagers, wireless applications
Answering Routine Enquiries	Interactive voice response (IVR) systems, fax, WWW
Project work	Voice and data calls, fax, e-mail, groupware, intranet
Recruitment	WWW, newsgroups
Document storage and retrieval	Combined document image and electronic document databases, intranet
Document Distribution	File transfer, e-mail, fax, WWW, intranet
Software distribution	File transfer, WWW, bulletin boards
Research and Development	Online information services, WWW, virtual conferences, special interest groups

From Table 1 it can be observed how the information exchange in various business activities can be performed using various new communication methods. It is clear that the development of modern technology e.g. mobile telephones, fax, e-mail, intranets, extranets, the Internet, audio and video conferencing, has broadened the choice of communication methods and arguably improved the exchange of information in terms of ease and speed. Each of the technological methods has advantages over its more traditional counterpart and has altered the nature of the interaction. For example, documents can be distributed via e-mail quicker

than by post or by courier. Audio/video-conferencing allows people from various corners of the globe to simultaneously participate in discussions and negotiations, thus reducing the cost of travel, the time commitment, the jet lag etc. Extranets enable EDI to occur facilitating just in time operations. Goods can be ordered, manufactured on a near time basis with a saving in inventory costs as a consequence.

1.1.1 The E-commerce Revolution - Perhaps the major change that has occurred with the technological revolution is the creation of the Internet and its utilisation as a new marketplace. In 1998, e-commerce worldwide was worth $32bn, 65% of this was business consumption and 35% was for home consumption. In 2002 it is forecast that e-commerce worldwide will be worth $425bn, with 78% of this being business to business and 22% for consumer (Financial Times 13th January 1999b).

In order to assess if the Internet and e-commerce is affecting relationships it is necessary to find out the degree and nature of usage. Kotler (1999) states seven ways the Internet can be used, which are applicable to both consumer and business markets. The Internet can be used to,

- Perform research.
- Provide information. The Internet can be used to access information about products, customer service support, customer advice, employee and sales force information, reseller information systems, locations, history etc.
- Provide discussion forums,
- Provide training,
- Provide online buying either as a supplementary ordering channel or the sole ordering channel.
- Provide online auctioning and exchanging
- Provide online "bits" delivery.

Geiger and Martin (1999) examined Irish companies' websites to find out how the Internet was being used as a strategic marketing tool. Three distinct Internet strategies emerged from their research,

1. Ornamental web presence – Companies with an ornamental web presence feel they have to be present on the web but do not have any concrete marketing objectives in establishing their website
2. Informational web presence – Companies with an informational web presence take care in producing a web site which will provide viewers with up to date accurate information on their products and services, in essence these sites are virtual brochures.
3. Relational web presence – This type of site can be used to build relationships with customers. These sites recognise previous customers and new customers, engage in dialogues with visitors and even have customers "bump into" each other to discuss a specific product.

Geiger and Martin (1999) found in their sample of Irish companies that many had failed to move their use of their website to that beyond a virtual brochure i.e. they had either an ornamental or informational web presence. Andrus (2000) also found Canadian companies predominantly set up their web sites as electronic brochures. If companies were aware of the range of functions that the Internet is capable of they may aim to establish a relational web site, which would enable them to achieve their marketing aims.

The Internet also offers major benefits to procurement. These include availability seven days a week, twenty four hours a day, the ability to quickly and easily search for potential suppliers and potentially a lower price. Companies may try to reduce their procurement costs by purchasing through the Internet and reducing the number of employees who deal with the transactional paperwork. The costs of workers employed to deal with such paperwork in the US alone cost $250bn. However, companies may not be able to reduce their costs by reducing the number of procurement staff as such personnel only make up 7% of the total number involved in carrying out these transactions. This may discourage companies from adopting the Internet as a procurement method. The adoption of EDI software, which has been available for two decades, is very small with only 2% penetration and although such software is being adapted for use on the Internet its uptake will be limited. In order for e-commerce to be adopted it may have to have a considerable impact on the selling, shipping and receiving functions too (Financial Times 13th January 1999b). The main disadvantages of procurement via electronic channels include, the time elapsed before receiving the ordered item and the fact that buyers cannot touch or feel the merchandise before ordering (Kotler 1999).

There is evidence that although many organisations are not fully utilising the potential of their web sites, many European executives thought their companies had benefited from using the Internet or their corporate intranets. They reported enhanced corporate image as the main benefit, followed by added efficiency, improved quality of products and services, improved employee relations and a strengthened customer base. To a lesser degree they reported increased sales, higher profits and, interestingly, closer ties with suppliers or distributors as tangible benefits (Financial Times 1999c). It is interesting to speculate that if these companies did fully use the capabilities of the Internet what could they achieve?

1.2 IT and the Effect on Social Exchange between Companies

Traditionally, relationships were perceived as "good" if they were long term, close and co-operative etc (Hakansson 1982). In the past, fewer methods of communication were available for the exchange of information, which meant that buyers and suppliers had to visit companies to assess them in terms of the quality of their product/service, their credit rating and also to discuss, negotiate and sign contracts etc. (Turnbull 1979). As previously stated these business processes have not changed in themselves but what has changed is how these exchanges occur. Now, companies may prefer to utilise one of the increasing number of electronic methods of communication rather than to meet personally to exchange information. Audio and video-conferencing for example may be used instead of a personal meeting. Parties can conduct their business without the inconvenience and expense of actually travelling. However although they may even be able to see each other face to face through video-conferencing, the visual cues and the physical presence of other individuals in the room may not be observable and this may have an effect on the interaction. Rutter (1984) has investigated the affect visual cues and physical presence has on communication. A number of experiments were carried out examining the communication differences between individuals in four conditions, face to face meetings (both visual cues and the physical presence), a video-link between separate rooms (visual cues only), same room with a barrier between the individuals (physical presence cues only) and audio contact (no visual cues and no physical presence cues). There was a significant change found moving from the face to face contact to the audio-contact only, the participants became increasingly psychologically distant, the communication became more depersonalised and increasingly task oriented. Communication became less spontaneous and less personal in content and in terms of negotiation the participant with the stronger case was increasingly more likely to win as the likelihood of

compromise decreased. This finding is vitally important for companies to consider when they need to carry out negotiations, establish trust, commitment, co-operation etc.

It is reasonable to assume that the effect of IT on social exchange, as mentioned above, will alter the formation of relationships and the nature of relationships. Social exchange is very important in establishing long term, trusting relationships. Successive interactions lead to the gradual interlocking of the two companies. When a relationship is well established, many aspects of agreements are not formalised or based on legal agreements but are based on mutual trust (Hakansson 1982). Building trust is a social process, which takes time and is based on personal experience and the successful execution of the three other elements of the interaction process, i.e. product/service, finance and information exchange (Hakansson 1982). In the past the establishment of trust has occurred through the social process of face to face meetings. It is possible that the advent of new technology has decreased the frequency of face to face interaction between companies, leading to increasing task orientation, less compromise, less personal interaction which would lead to less trust being created and result in greater formalisation of agreements and contracts. Other dimensions of the relationship atmosphere will be affected by information exchange. The trend towards single sourcing and EDI often means neither party has all the power leading to mutual dependency to ensure the survival of the companies (Naudé and Holland 1996).

Social exchange has an important function in reducing uncertainties, which occur where there is psychological, spatial or cultural distance or where experience is limited. If IT decreases personal interaction, increases individual's task orientation and decreases compromise, then the resolution of problems and uncertainties may be increasingly difficult and protracted, leading to relationships being perceived as more difficult to manage. The use of certain IT methods which involve no visual cues or physical presence may increase the psychological distance between individuals which will add to any difficulties in solving problems.

Of course, the assumption so far has been that most social exchange occurs through face to face situations. Social exchange may occur via phones, e-mail etc. but do these methods of communication build relationships in the same way? Differences in communication occur depending on the visual cues available which may alter the relationship atmosphere. If methods with no visual cues are used then the relationship atmosphere may be more inclined to be less co-operative, less trusting than if face to face meetings were also used as a method of communication.

Visual cues are also used to assess a number of qualities such as an individual's mood or personality. People can be reasonably accurate in their perceptions about others upon meeting them, through non-verbal cues such as body posture, eye contact, positioning etc. (Arnold, Cooper and Robertson 1995) and this process is absent in electronic communication. Although this assessment process is likely to be done subconsciously rather than consciously it contributes to the overall impression of the buyer/supplier and the company. Even if first impressions are wrong then the fewer face to face meetings there are, the fewer the opportunities there are for the parties to correct these impressions.

Research Questions

The affect of IT has led to a number of important questions with regard to its physical use and user's perceptions of its influence on business relationships.

- To what extent do companies utilise information technology and what are managers' perceptions of IT in general, the Internet and e-mail?
- How useful do companies currently find the various communication methods and what do they predict for the future?
- How has the frequency of use of electronic communication methods changed from the past and how is it anticipated as changing in the future?
- How has IT, the Internet and e-commerce affected supplier-customer relationships?

2.0 Methodology

The research reported here is part of a wider, multi-national project investigating a number of changes in the environment affecting interactions and relationships, of which information technology is just one. The research reported here consists of two stages, semi-structured interviews based upon a questionnaire and a large postal survey. The initial use of a qualitative method allowed the research instrument to be piloted, so that the clarity of the terminology and the relevance of the issues to the respondents could be checked. The postal survey incorporated a limited number of questions on information technology due to the fact it was investigating a number of other issues. Initially the respondents were asked which types of communication they used. They were then asked to rate their current usefulness and their anticipated usefulness in 4-5 years time on a Likert scale. The respondents were asked how often they used each type of communication 4-5 years ago, currently and to predict 4-5 years in the future. Twenty-six attitude statements were used to look at the perceptions of IT in general and more specifically e-mail and the Internet. Respondents had to rate their agreement or disagreement on a 5 point scale. The results were statistically analysed using SPSS.

Twenty-one managers participated in the semi-structured interviews, four purchasers and seventeen suppliers. The respondents were recruited from part time MBA courses and personal contacts. Nineteen different companies were represented including manufacturers of vehicles, packaging, medical products automotive and aeronautical component manufacturers and retailers of electrical goods and food.

The quantitative research is based on a postal questionnaire to a sample of 2,000; 1,000 to marketing managers and 1,000 to purchasing managers. These questionnaires were equally distributed to three industries, auto/electrical component manufacturers, financial services and telecommunications. The auto/electrical component manufacturing industry was selected as it would be representative of the manufacturing industries that were predominant when the initial IMP research was carried out. The telecommunications industry has undergone numerous changes in recent years and developments are continuing to occur driving the implementation and use of IT. Finally, over the last three decades manufacturing has declined as services have increased in importance so financial services were incorporated into the sample. A commercial company provided a list of companies in these sectors and contact names.

Table 2: The Distribution of the Questionnaire

Total 1,387 (2,000)	Marketing Managers 720 (1,000)	Manufacturers	334 (334)
		Financial	333 (333)
		Telecommunications	53 (333)
	Purchasing Managers 667 (1,000)	Manufacturers	334 (334)
		Financial	333 (333)
		Telecommunications	0 (333)

[The target distribution figures are in parentheses, the actual distribution figures are not in parentheses.]

From table two above it can be observed that one thousand three hundred and eighty seven questionnaires were distributed. Both the components and financial sectors in marketing and purchasing have been sent the designated number of questionnaires. Six weeks after distributing the initial communication, a reminder letter was distributed to non-respondents. The telecommunications industry will be completed in the near future. In addition to the questionnaire and the covering letter an added incentive to complete the questionnaire was offered to the marketing side. The marketers were asked to provide the names and addresses of five customers who would then be sent a customer satisfaction survey, the aggregate results of which would be returned to the marketers that wished to take part.

3.0 Results

3.1 Qualitative Results

3.1.1 The Use of IT - The use of IT within companies varies considerably, some companies are readily adopting and utilising modern technology whereas in other companies its impact is minimal. One company had been using IT for many years to monitor their stock figures and sales figures. The same company had also established a web site enabling products to be ordered online. Another company is currently updating and increasing its use of IT. It is becoming aware of the uses of e-mail and video-conferencing but is not fully aware of the uses of the Internet. There are also companies where IT has had a minimal effect on how they conduct their business. The mix of uses of IT may have lead to an ambivalent perception of the usefulness of the Internet and e-mail. Companies who do not have access to them may not appreciate their uses, some companies may not be fully utilising them and other companies may be gaining the maximum benefit. Considering the huge growth in the uses and applications of computers that have occurred since the early eighties, it is surprising that IT is so under utilised.

The most common way IT has altered business processes has been through the improvement of communications particularly via e-mail; the speed of response has been greatly reduced. It has enabled the exchange of information such as purchase orders and designs, to be faster and accurate. Technology such as e-mail with attachments, electronic ordering over the Internet has reduced administration costs. One company stated that they save an estimated £100m per annum through using an intranet and eliminating paper work. Audio-conferencing and video-conferencing has reduced employees' travelling expenses. IT is anticipated to continue to improve business in the future. IT is perceived by one company as being a method of providing education to their staff. They are aiming to set up a virtual university to teach staff the skills they require.

Interestingly, only one person mentioned a negative aspect of IT. The increased use of IT was perceived as having a detrimental effect on relationships as it reduced the amount of interpersonal contact and lessened the opportunity to build personal relationships.

3.1.2 The Perceptions and Use of the Internet - The Internet is not perceived as particularly useful and appears to be an under-utilised tool. Marketing personnel did not mention it as a place where they could advertise their business or gather information on their competitors or potential customers. Buyers stated that suppliers often did not know the market they were selling to, so the Internet could be one way for suppliers to obtain accurate market information, which would improve their chances of obtaining business. The under utilisation of the Internet may be due to a number of reasons. It is a fairly new type of media, whose capabilities as a marketing tool have not been fully explored and there is little evidence about its effectiveness as a marketing tool. Companies may not want to advertise on it because they may perceive it to be an "unestablished" media with a limited audience. There is a vast amount of information on the Internet which can only be searched with imperfect search engines therefore they may have had problems obtaining relevant information and not persisted in trying. For the same reason they may have decided not to produce a web site. It is not clear how people perceive companies on the Internet. There are few, if any legal requirements for what is placed on the Internet so people may be unsure of the product they are purchasing and whom they are dealing with unless it is an established company. Buyers tended to perceive the Internet more positively and thought it could be useful for both obtaining information about suppliers and marketing themselves to customers. One company had produced a web site but was aware how it needed to be improved after looking at competitors web sites.

3.2 Quantitative Results

Overall the response rate has been a very disappointing, 7.7% (107) whereas 20% was expected. In addition fifty-nine questionnaires have been returned incomplete. Of these 47 questionnaires were returned due to the commercial database not being kept up to date.

3.2.1 The Utilisation of Various Methods of Communication

It can be observed from the table below that land line telephones, the fax and e-mail are used by 100% of the sample. Mobile telephones are also used widely with 94.2% of the sample using them and the vast majority of the sample had access to the Internet. Less commonly utilised methods of communication were intranets, audio-conferencing, video-conferencing and extranets. These figures demonstrate the gradual diffusion of innovations in IT through society, mobile phones and e-mail has existed longer than the Internet, extranets and intranets and they are used by nearly 100% of the sample. In 4-5 years time it is possible that extranets, intranets and the Internet will have the same penetration.

Table 3: The Current Percentage Utilisation of Various Methods of Communication

	Tel	**Mob Tel**	**Fax**	**Email**	**Intranet**	**Extranet**	**Internet**	**Audio-conferencing**	**Video-conferencing**
Use	100	94.2	100	100	53.4	28.2	86.4	52.9	32.0
Do not use	0	5.8	0	0	46.2	72.1	13.5	46.6	68.3

3.2.2 The Usefulness of Various Communication Methods

Table 4: The Current Perceived Usefulness of Various Communication Methods.

	Tel	Mob Tel	Fax	Email	Intranet	Extranet	Internet	Audio-conferencing	Video-conferencing
Mean	4.63	3.84	4.20	4.08	3.38	3.25	3.37	3.07	2.90
SD	.59	1.04	.89	.91	1.04	.84	1.07	.97	.98
Min	3	1	2	2	1	3	1	1	1
Max	5	5	5	5	5	5	5	5	5
Range	2	4	3	3	4	2	4	4	4
N	104	98	104	104	56	28	89	54	31

[1-Not useful, 2-Quite useful, 3-Useful, 4-Very useful, 5-Extremely useful]

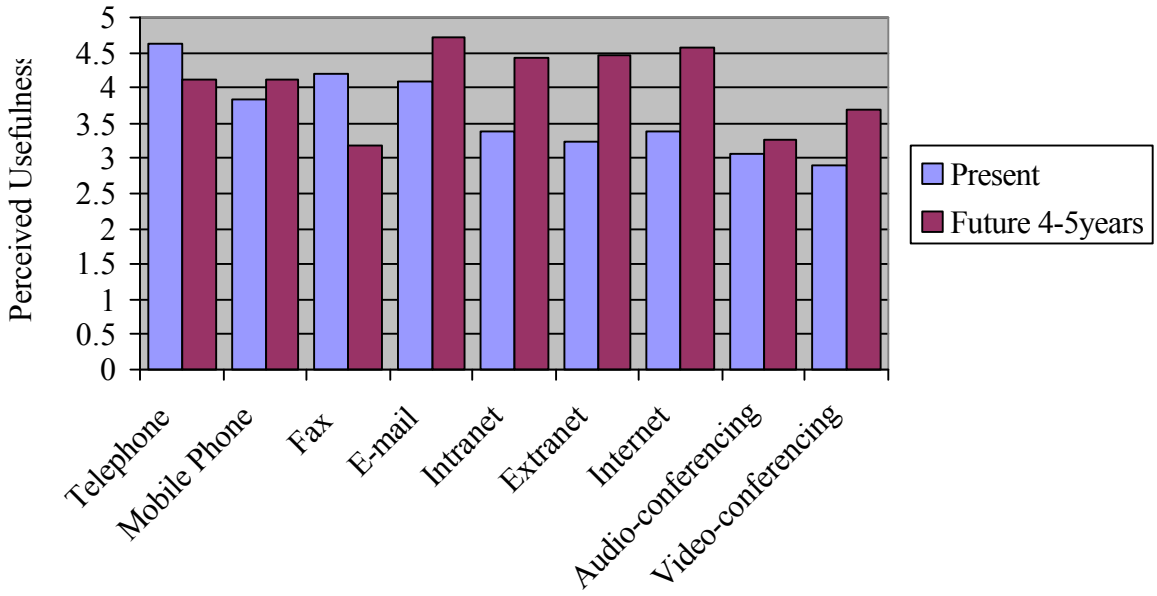
Within the sample, of the companies that utilised each method of communication, it was found that presently, the landline telephone is perceived as being very useful, followed by fax, e-mail, the mobile phone, intranets, the Internet, extranets, audio-conferencing and finally videoconferencing. These results are surprising; it was expected that intranets and extranets would be perceived as being more useful. It may be that the respondents do not fully understand the terminology. The respondents may be using a computer, which is networked and not realise that it would be defined as an intranet, they may be capable of ordering supplies directly from their supplier and not realise that it would be defined as an extranet. This unfamiliarity with the terminology may have reduced the respondents' perceptions of the usefulness of these two methods of communication. Alternatively the respondents may be fully aware of what intranets and extranets are and their perceived lack of usefulness may be due to the way they are utilised. Respondents may need to be positively effected. It may be physically quicker to circulate a memo via the intranet but it still has to be read. The circulating process may be carried out by a secretary or junior so it does not benefit the supplier/buyer directly. Extranets may only allow a certain amount of information to be accessed. Buyers for example may be able to access information about products and prices and whether they are in stock but if they cannot order online they will still have to go through the normal buying process. The Internet was perceived as useful but perhaps less useful than the current massive publicity suggests it should be. The reasons for this may be, the respondents had high expectations of what can be achieved which are not actually being realised, i.e. they may have thought they would be able to readily access information about suppliers/competitors, order goods, perform stock control etc. but in reality are unable to do so. Alternatively, the respondents may be unable to efficiently use the Internet. The search engines on the Internet often provide a huge number of hits for searches which includes a considerable amount of irrelevant information. Audio-conferencing and video-conferencing were perceived as useful and quite useful respectively.

Table 5: The Future Usefulness of Various Types of Communication (4-5 years time)

	Tel	Mob Tel	Fax	Email	Intranet	Extranet	Internet	Audio-conferencing	Video-conferencing
Mean	4.13	4.11	3.17	4.72	4.44	4.45	4.57	3.27	3.69
SD	.97	1.00	1.22	.68	.76	.69	.72	1.17	1.35
Min	1	1	1	1	2	3	1	1	1
Max	5	5	5	5	5	5	5	5	5
Range	4	4	4	4	3	2	4	4	4
N	104	98	103	103	57	29	89	56	32

E-mail is anticipated to become the most useful form of communication in 4-5 years time followed by the Internet. The landline phone's perceived usefulness is expected to decrease slightly and mobile phones perceived usefulness is expected to increase slightly, making them equally useful. The perceived usefulness of the fax is expected to decrease in the future (See Figure 1). Perceived usefulness of intranets, extranets, audio-conferencing and video-conferencing are all expected to increase, more so for intranets and extranets than audio and video-conferencing.

Figure 1: The Current and Future Perceived Usefulness of Various Methods of Communication.



3.2.3 The Frequency of Use of Various Types of Communication

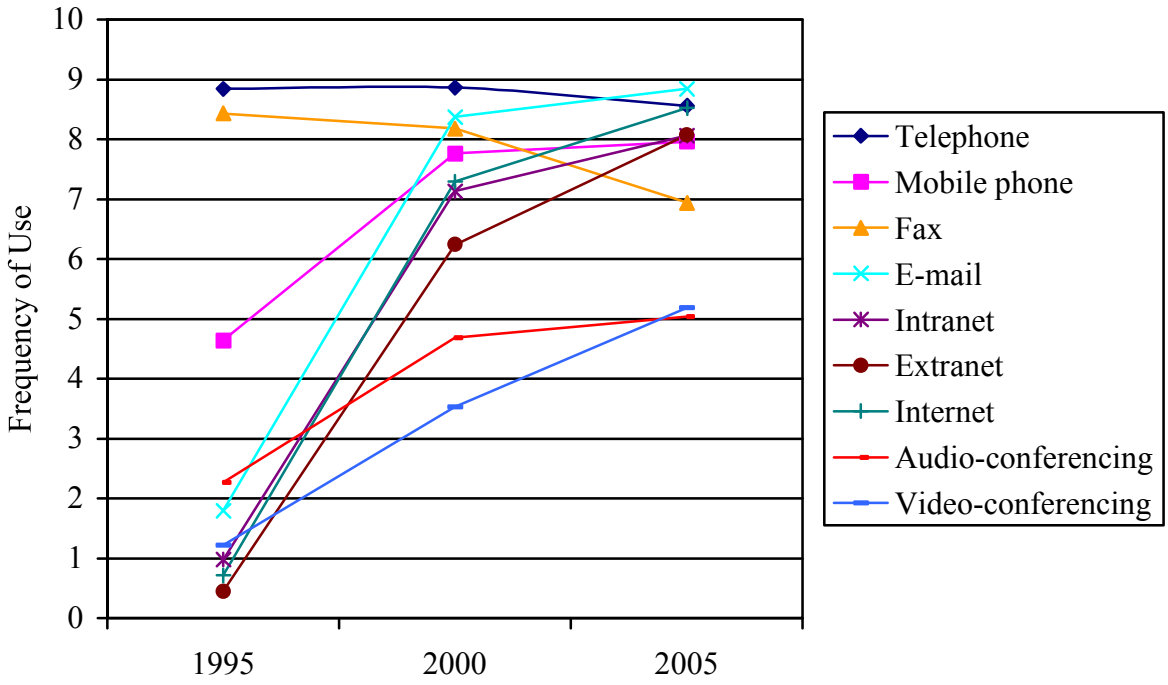
Table 6 shows that, as expected in the past telephone and fax were used most frequently. The other methods of communication listed were available 4-5 years ago but a variety of reasons may have prevented frequent use e.g. expense. Over the past 4-5 years there has been a huge increase in the frequency of use of the newer methods of communication. E-mail and the mobile phone have become mature products in that they are used 2-3 times a week. In the future use of the mobile phone and e-mail looks set to increase further whereas use of the fax will decrease. The Internet, intranets and extranets are not currently used that often, extranets less so than intranets and the Internet. The lack of use of these methods may be due to the reasons effecting their perceived usefulness which were mentioned earlier. However the frequency of use of these methods is expected to increase further in the next 4-5 years so they become more popular than the mobile phone or the fax (See Figure 2). Audio and video-conferencing are not used more than every three months and their future use is not expected to increase to more than monthly. As companies are establishing web sites, in effect making themselves available for international business the use of audio and video-conferencing may increase to save on travelling costs etc.

Table 6: The Frequency of Usage of Various Types of Communication in the Past (4-5 years ago), Present and Future (4-5 years from now).

Method of communication	**Past**	**Present**	**Future**
Telephone	8.84 0.97 9 (0-9) (n=104)	8.86 .52 4(5-9) (n=103)	8.56 1.04 6(3-9) (n=103)
Mobile telephone	4.64 3.79 9(0-9) (n=98)	7.76 1.59 7(2-9) (n=97)	7.96 1.73 9(0-9) (n=98)
Fax	8.43 1.20 9(0-9) (n=104)	8.18 1.50 9 (0-9) (n=103)	6.94 2.50 9(0-9) (n=103)
Email	1.80 3.27 9(0-9) (n=102)	8.37 1.28 9(0-9) (n=103)	8.84 0.48 3(6-9) (n=102)
Intranet	.98 2.62 9(0-9) (n=56)	7.13 2.12 9(0-9) (n=54)	8.06 1.72 8(1-9) (n=54)
Extranet	0.45 1.80 9(0-9) (n=29)	6.24 2.69 9(0-9) (n=29)	8.07 1.94 9(0-9) (n=29)
Internet	0.72 2.05 9(0-9) (n=86)	7.29 2.09 9(0-9) (n=86)	8.52 0.93 5(4-9) (n=87)
Audio-conferencing	2.27 2.57 7(0-7) (n=55)	4.69 1.93 9(0-9) (n=55)	5.04 2.40 9(0-9) (n=55)
Video-conferencing	1.22 1.88 6(0-6) (n=32)	3.53 2.03 7(0-7) (n=32)	5.19 2.82 9(0-9) (n=32)

[0-Not at all, 1-Less than yearly, 2-Yearly, 3-Every 6 months, 4-Once every 3 months, 5-Monthly, 6-Fortnightly, 7-Weekly, 8-2-3 times a week, 9-Daily]

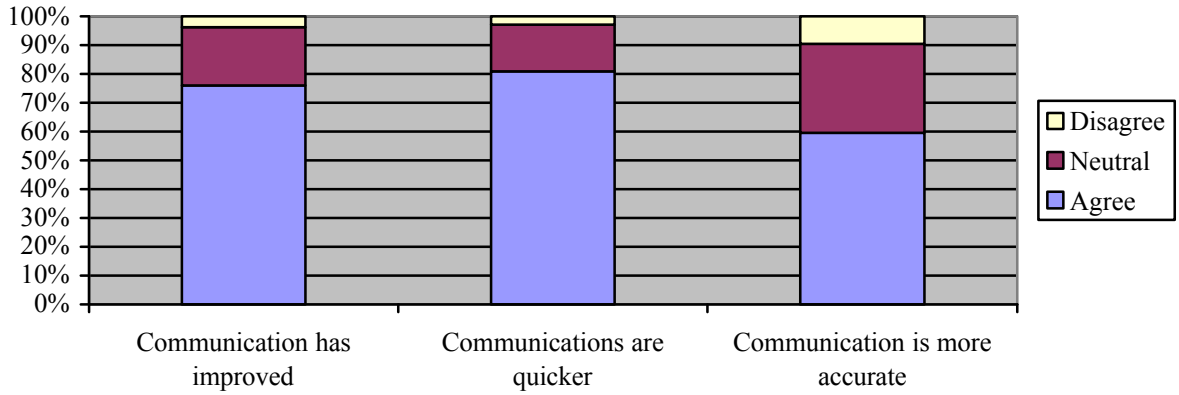
Figure 2: Past, Present and Future Frequency of Use of Various Methods of Communication.



3.4 Attitudes to IT

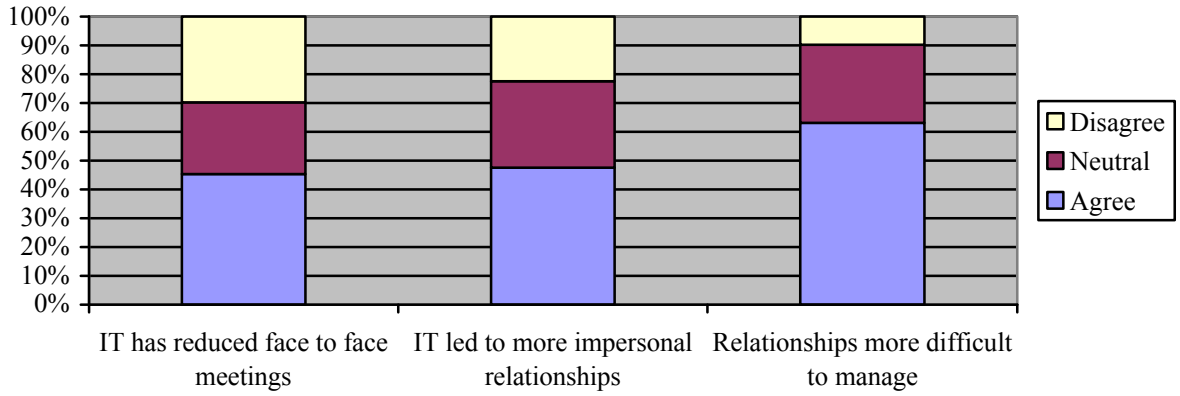
3.4.1 Attitudes to IT and its Impact on Relationships - The majority (73.0%) of the respondents believe IT has had an impact on how they deal with suppliers and customers. 66.4% of companies say their suppliers and customers regularly use IT to communicate and 87.4% are developing their use of IT to improve their use of modern technology. 75.9% felt that IT had improved communications with suppliers and customers. 80.8% felt IT had made communications quicker and 59.6% felt it had made communications more accurate (See Figure 3). Generally less than 15% of the respondents disagreed with these statements. These respondents are not fully aware of the capabilities of modern technology and how it can do so much more than landline telephone or fax. Alternatively these respondents' communication requirements may be satisfied by telephone/fax and they may have no need to e-mail documents, search for information on the Internet or use audio or video-conferencing.

Figure 3: Respondents' Perceptions of the Effect of IT on Communication



In terms of personal face to face meetings IT is perceived to have a mixed impact. Forty five point two percent of respondents think IT has reduced the need for face to face meetings and 53.4% feel it has reduced the need to visit suppliers/customers. However 29.8% do not think IT has reduced the number of face to face meetings and 18.4% do not feel that it has reduced the need to visit suppliers/customers. 47.5% feel IT has led to more impersonal relationships, 22.4% disagree (See Figure 4). 45.6% feel it has led to more formal relationships, 21.7% disagree. 63.1% feel that relationships have become more difficult to manage due to less face to face contact, only 9.7% disagree (See Figure 4). Up to a third of the respondents neither agreed or disagreed with these statements. Managing relationships has become more difficult and it could be due to a decrease in the number of visits from suppliers/customers. There is less opportunity for social exchange i.e. it is more difficult for the parties to get to know each other through polite conversation during which common interests outside of work may be discussed. As a result the relationships are more impersonal and more formal. Communication by methods such as e-mail, intranets, extranets and the Internet removes the one to one interaction, the visual cues, the body language and the ritualistic polite conversation before getting down to business. Only approximately a third of people agree that IT has lead to the loss of personal interaction, a third were neutral and a third disagreed. People might interact with the same people electronically but possibly the relationship does not develop in the same way as when there is frequent face to face contact.

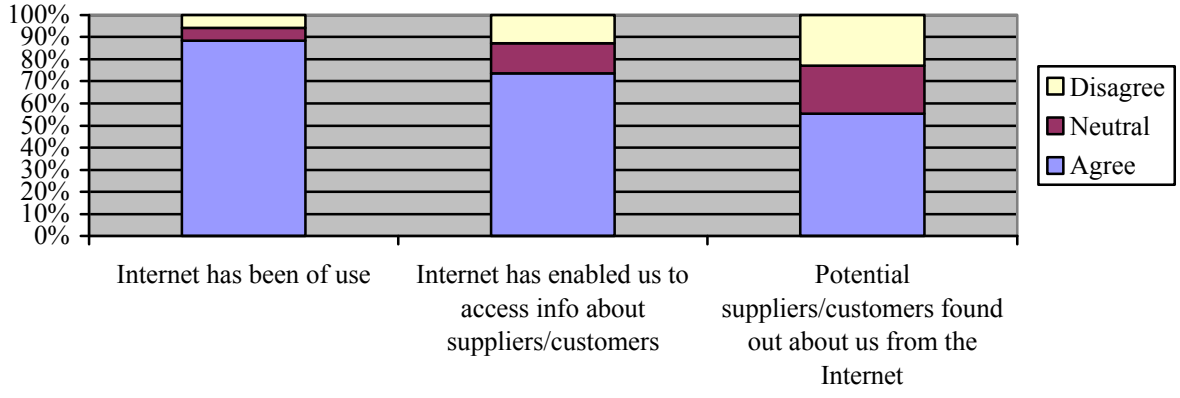
Figure 4: Respondents' Perceptions of the Effect of IT on Relationships



The respondents were fairly equally divided as to whether IT was taking up more financial resources than it should, 26.4% agreed that it was, 35.3% were neutral and 38.3% disagreed. Nearly half (48.9%) were forced to take up IT platforms by more powerful counterparts. 52.7% believed that IT had provided access to foreign suppliers/customers. Through establishing a web page companies are automatically launching themselves onto the international market and making themselves accessible to foreign customers and suppliers.

3.4.2 Attitudes to the Internet - The vast majority of respondents generally perceived the Internet as having been of some use (88.4%). It had enabled the majority of respondents to access information about suppliers/customers (73.6%) and their competitors (80.2%). Information from the Internet was used quite often with 55.4% of the respondents agreeing that suppliers/customers have found out about them from the Internet. The Internet is obviously a popular and reasonably effective media, which companies use for doing research and for marketing their company. Although 55.4% of the respondents stated that customers/suppliers had found out about them from the Internet, obviously this figure could be improved. Many web sites are currently virtual brochures (Geiger and Martin 1999), they are not fully using the functionality of the Internet. Companies need to alter their web site so that they are relational rather than merely informational, this would allow the company to recognise the visitor, personalise offerings and build up a relationship.

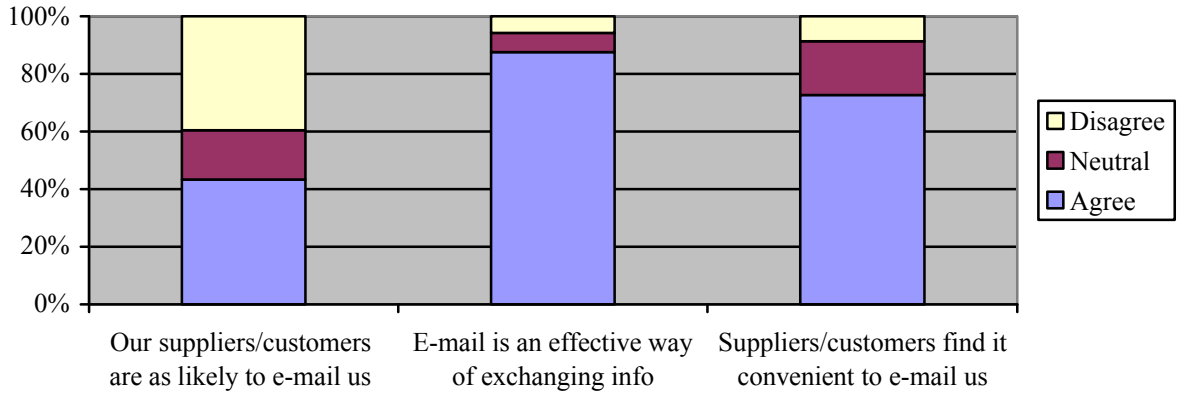
Figure 5: Respondents' Perceptions of the Internet



A very small number of respondents (5.8%) feel the Internet has been of no use to them and 5.8% of the respondents are neutral, which may be due to a number of reasons. The respondent may have difficulty performing a search, either too much information is produced to trawl through and/or they are unable to find the information required. There may be a mismatch in the respondents' perceptions and expectations of what is capable on the Internet and what can actually be performed on the Internet. Customers may be expecting to be able to obtain quotes, detailed product specifications and/or place orders and may find themselves unable to do these things leading them to perceive it to be of little use. Also companies may believe e-commerce to be a passing fad and may think that it is not worth investing in the technology to establish a web site.

3.4.3 Attitudes to E-mail - The vast majority of the respondents think e-mail is an effective way of exchanging information (87.5%) and 72.6% of the respondents think their suppliers/buyers find it convenient to be able to e-mail them. However, less than half (44.2%) of the respondents felt e-mail was widely used amongst their suppliers/customers and less than half (43.2%) of the respondents believed that their suppliers/customers were as likely to e-mail them as telephone them. E-mail is a convenient and effective way of communicating but it is not used that often, the results in Table 4 indicate that the respondents are only using e-mail 2-3 times a week. This may be due to companies perceiving a problem with the security of e-mails and not using it for sending documents, which contain information potentially useful to competitors. It may be quicker to resolve problems over the phone as there is less delay responding to telephone calls than e-mails. Telephone calls are generally answered if not by the person required by someone else who can help or take a message. When using e-mail there may be a longer delay in getting a response from the person required if they are not online or at their computer.

Figure 6: Respondents' Perceptions of E-mail



4.0 Discussion

The interaction approach developed in the late eighties perceived business relationships as being established through product/service, financial, information and social exchange; and the re-occurrence of such exchange episodes would lead to the building of a relationship. At the beginning of the new millennium these exchanges still provide the basis of business interactions. However there has been a change in the physical processes businesses use in the interaction process. Traditionally it has been based on considerable personal interaction and

face to face meetings mainly due to the limited number of methods of quick communication. Face to face interactions enabled individuals to get to know the company and its employees they were doing business with. In carrying out these exchanges face to face there is generally initial small talk, which enables the parties to get to know each other, not just on the business level but also on a more personal level. This enables each individual to make a better assessment not only of the company but the person or people that they will be dealing with and whether they can trust them. Research (Rutter 1984) has found that in face to face meetings communication between the parties is more spontaneous and more personalised. In negotiations the parties will be more inclined to compromise and be less task oriented. Frequent face to face meetings would have been responsible for the establishment of long term trusting, co-operative relationships which were less formal as the participants knew each other. This would also lead to fewer written contracts and an increase in the ability to trust the other party's word. Hakansson (1982) stated that trust led to reduction in uncertainties, people who trust each other can talk over and resolve any problems or uncertainties.

The use of IT is impacting on the interaction process. Although IT has provided a greater number of ways of communicating and made communication quicker and more accurate there has been a decrease in the number of face to face interactions and the number of visits to suppliers/buyers. As a consequence of the change in the physical way business is done the social exchange between the buyers and suppliers has altered. Rutter (1984) has found without visual cues and the physical presence of the individuals, communication is depersonalised and more task oriented. The results confirm that relationships have become more impersonal and more formal as IT usage has increased. The formality of relationships between companies may mean there is less opportunity to establish trust which in turn means uncertainties may be resolved more slowly and not as satisfactorily. The increasing formality is reflected in the fact that companies rely on contracts and legal agreements more now than they did in the past. The increased formality and increasing impersonality of relationships has led people to think that relationships are more difficult to manage in the present environment.

The technological revolution has created a greater number of quick, electronic communication methods however the uptake of this new technology is variable. Mobile telephones and e-mail both quite new in the 1980's have diffused through society over the last fifteen years to become mature, frequently used products which are perceived as useful. More recent innovations have achieved a variable penetration rate, the Internet which has existed in its present form for less than 10 years being the most commonly used, followed by intranets then extranets. The latter three communication methods are used quite frequently and perceived as useful and the perceptions of these characteristics are set to increase in the future. As these methods of communication diffuse through society obviously they will be used more frequently and companies will become more aware of the range of potential functions they have which will increase their perceived usefulness.

Companies lack of uptake of information technology may be related to the fact that companies are unaware of the business activities (See Table 1) that can be performed using IT and/or alternatively the companies' resources. In larger companies resources may be available enabling them to hire an IT specialist to set up and maintain systems. However it remains a problem in smaller companies who are unable to employ an IT specialist and may remain unaware of the variety of uses of IT. Even if companies have installed various IT equipment, there is potentially a problem with the ability of the workforce to use them efficiently. If people are not trained how to use IT they may not be prepared to try it on their own for a variety of reasons. Resources may not be available in a number of companies to

train employees in using IT and a lack of investment will lead to computer illiterate employees which will negatively affect the company particularly as innovation in this area is not slowing down. The next wave of mobile phones using wireless application protocol technology (WAP) which allow web-based applications to be used are already available. This technology is set to revolutionise Internet banking and other online services and lead to the development of m-commerce (Financial Times 2000c).

Although the Internet had a high penetration rate its usefulness was not as high as the surrounding publicity would suggest it should be. Some companies may feel that e-commerce is not a business method that will be around for long. This speculation is fuelled by the high floatation of dot com companies on the stock exchange leading to the thought that "the bubble must burst" and the fact that no company on the Internet has made a profit. Many companies have felt the need to establish a web site effectively placing themselves in the international arena. In doing business with companies on the other side of the world they may be forced to use technologies currently perceived as not very useful such as audio and video-conferencing to avoid travelling costs. The adoption of one new technological method i.e. the Internet, therefore may lead to another i.e. audio or video-conferencing.

It is encouraging that the new methods of communication that companies do use have been found to be useful and that despite the fairly low penetration in some instances their usefulness and frequency of use are expected to increase in the future. With regard to the interaction approach the use of IT has altered the nature of the interaction processes between the companies. The research has highlighted that although IT has made communication quicker, easier and more accurate between companies it may has had a negative effect. The respondents think that face to face meetings and visits to suppliers/customers have reduced in number leading to more impersonal, formal, task oriented relationships which are more difficult to manage which reinforces Rutter's (1984) research as mentioned earlier. The relationship atmosphere will also be altered, increasing impersonality and formality in addition to a greater task orientation may lead to less trusting, less co-operative relationships with an uneven balance of power. Although IT is creating changes at the interaction process level and relationship atmosphere level the model itself is capable of taking them into account i.e. it is still a viable model.

As previously stated this research is part of a larger multi-national project investigating a number of issues of which IT is only one. Obviously there are a number of further questions raised by this research, which require further investigation. Are people aware of what intranets and extranets are? How are they used in companies? What are companies' objectives when establishing a website, what features do companies incorporate into their website, do they measure whether they achieve these objectives? What exactly are the contact patterns between companies? Is there a relationship between the level of trust, co-operation etc and the frequency of electronic communication?

5.0 Conclusion

The interaction approach as a model is still as valid at the beginning of the 21st century as it was two decades ago when it was first developed. Essentially the basis of the interaction process is the same; two parties trade a product/service in exchange for money. What has changed and is continuing to change in the interaction process are the methods of information exchange and the dynamics of social exchange. These changing methods of physical interaction and social exchange have impacted on the relationship atmosphere altering the

nature of relationships. In the past a "good" relationship was perceived as being long term, close and co-operative built upon face to face meetings, which established trust and reduced uncertainties. "Good" relationships still exist but typical relationships are undergoing change in the current IT driven environment. Relationships are being based less on face to face contact and more on electronic forms of communication such as e-mail, intranets, extranets etc. which are set to become even more popular than they are now. These new methods of communication have led to fewer meetings, less personal interaction, increasing formality, a greater reliance on contracts and legal agreements and greater difficulty in managing relationships. The "norm" for a good relationship has changed over the last twenty years and the interaction approach has been able to take this into account and also explain it.

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Appendix 1

The Respondents' Answers to the Information Technology Statements (Percentage)

Statement	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Mean, SD, range
1. The Internet has enabled us to access useful information about our suppliers. (n=102)	18.7	54.9	13.7	12.7	0.0	3.79 .89 (2-5)
2. The Internet has enabled us to access information about our competitors. (n=101)	27.7	52.5	13.9	5.9	0.0	4.02 .81 (2-5)
3. Potential suppliers have found out about us via the Internet. (n=101)	11.8	43.6	21.8	19.8	3.0	3.42 1.03 (1-5)
4. The Internet has been of no use to our company. REV SCORE (n=103)	2.9	2.9	5.8	41.7	46.7	4.26 .92 (1-5)
5. Our suppliers are just as likely to e-mail us as to telephone or write to us. (n=104)	6.7	36.5	17.3	31.7	7.8	3.03 1.13 (1-5)
6. E-mail provides an effective way of exchanging information rapidly with suppliers. (n=104)	38.5	49.0	6.7	2.9	2.9	4.17 .9 (1-5)
7. E-mail is not widely used by our suppliers. REV SCORE (n=104)	2.9	37.5	15.4	35.6	8.6	3.10 1.09 (1-5)
8. Our suppliers find it convenient to be able to e-mail our company. (n=102)	13.8	58.8	18.6	7.8	1.0	3.76 .82 (1-5)
9. Modern technology has had minimal influence on how we deal with our suppliers. REV SCORE (n=104)	7.7	5.8	13.5	43.3	29.7	3.82 1.16 (1-5)
10. Our suppliers regularly use modern technology to communicate with us. (n=104)	8.7	57.7	15.4	16.3	1.9	3.55 .93 (1-5)
11. We are developing our use of information technology to improve our relationships with our suppliers. (n=104)	35.6	51.8	8.7	2.9	1.0	4.18 .79 (1-5)
12. Communication with suppliers has improved with the introduction of IT. (n=104)	21.2	54.7	20.2	2.9	1.0	3.92 .78 (1-5)
13. We need to improve our use of modern technology. (n=104)	48.0	42.3	8.7	1.0	0.0	4.38 .69 (2-5)
14. Communications between our suppliers and us has become quicker due to IT. (n=104)	24.0	56.8	16.3	2.9	0.0	4.02 .72 (2-5)
15. IT has made communications with suppliers more accurate. (n=104)	16.3	43.3	30.8	8.6	1.0	3.65 .89 (1-5)
16. Modern technology has improved communications with our suppliers. (n=104)	20.2	51.0	24.0	4.8	0.0	3.87 .79 (2-5)
17. Modern technology has reduced the need for face to face meetings. (n=104)	6.7	38.5	25.0	26.0	3.8	2.82 1.02 (1-5)
18. Modern technology has reduced the need for visits from our suppliers. (n=103)	12.6	40.8	28.2	15.5	2.9	2.55 1.00 (1-5)
19. IT has led to a loss of personal interaction. (n=104)	4.9	28.8	28.8	28.8	8.7	3.08 1.06 (1-5)
20. The implementation of IT is taking up more financial resources than it should. (n=102)	3.9	22.5	35.3	31.4	6.9	3.15 .98 (1-5)
21. We are forced to adopt IT platforms by a more powerful counterpart. (n=94)	6.3	42.6	27.7	20.2	3.2	2.71 .97 (1-5)
22. IT has allowed us to enter relationships, which we could not otherwise have entered. (n=102)	3.9	35.3	33.3	22.6	4.9	3.11 .96 (1-5)
23. IT has led to more formal relationships. (n=101)	2.0	43.6	32.7	19.7	2.0	2.76 .86 (1-5)
24. The increased use of IT has led to a more	1.9	45.6	30.1	22.4	0.0	2.73

impersonal relationship with our suppliers. (n=103)						.83 (1-4)
25. IT has made relationships more difficult to manage, as there are fewer face to face meetings. (n= 103)	1.9	61.2	27.2	6.8	2.9	2.48 .78 (1-5)
26. Modern technology has provided access to foreign suppliers. (n=93)	9.7	43.0	20.4	17.2	9.7	3.26 1.15 (1-5)