A Cross-Cultural Comparison of the Impact of Information Technology on Managing Relationships.

Sheena Leek, Cardiff Business School, Cardiff University, Aberconway Building, Colum Drive Cardiff CF10 3EU. Tel: 029 20874000 Ext. 77434 E-mail: LeekS1@cardiff.ac.uk

Peter W. Turnbull, Birmingham Business School, University of Birmingham, Edgbaston, Birmingham B15 2TT. Tel: 0121 414 7097 E-mail: P.W.Turnbull@bham.ac.uk

Peter Naudé, School of Management, University of Bath, Bath BA2 7AY Tel: 01225 323772 E-mail: P.Naude@bath.ac.uk

Robert Salle, EM-Lyon, E-mail: salle@em-lyon.com, salle@groupe.esc-lyon.fr

ABSTRACT

Since the interaction approach (Hakansson 1982) was developed in the early 1980's, as a framework for the study of business to business relationships there has been a rapid evolution in the use of IT worldwide which has been predicted to dramatically change how business is conducted (Key Note 2000). In this paper we report on a study designed to examine the impact IT is having on business relationships in two different countries, the United Kingdom and France. The results show that the penetration of IT is greater in France than the UK despite greater investment in the UK (www.eto.org.uk 2002). However, generally, British suppliers are more frequent users and believe IT to be more useful than do their French counterparts. Both French and British buyers are beginning to feel the effects of IT impacting their relationships as they feel there is a reduction in the need for visits.

INTRODUCTION

Hakansson and Snehota (1989) stated that business interactions and relationships do not occur in a vacuum but are inevitably influenced by the environment in which they take place. In addition they are also affected by the individual's experience, personality, education and culture (Hakansson and Snehota 1989). These perceptions were not encompassed in the "classical" marketing approach or transaction economic theory. However, the importance of the interacting parties and the environment of the relationship were incorporated in to the interaction approach developed by the IMP group in the early 1980's. It was recognised that people's personalities, motivations, experiences and culture would influence episodes between organisations and that this was of importance when dealing with foreign companies (Hakansson 1982).

Since the interaction approach was initially developed a number of changes have taken place in the business environment. Globalisation has increased and while some companies believe an awareness of cultural differences is necessary when dealing with foreign companies, others are of the view that cultural differences are decreasing and society is becoming homogenised. In addition to increasing globalisation there have been innovative developments in IT and a phenomenal increase in its use. However although IT is generally perceived to have improved a number of working practices, it is also thought that it may be having an adverse impact on communication (Rutter 1984, Tickle-Dengen and Rosenthal 1990, Morris, Nadler, Kurtzberg and Thompson 2000, Thompson and Nadler 2002) and consequently the establishment and maintenance of business relationships which are at the core of the interaction approach (Leek et al 2003).

The UK and France do a significant amount of business together as can be observed from Table 1. In conducting business across the English Channel or Le Manche both British and French companies have to be aware of and deal with cultural differences. Culture not only effects how companies function in their own country but also how they interact with companies from other countries and how they react to changes in the business environment. Hofstede (1984) highlighted how countries differ along four dimensions, individualism/collectivism, power distance, masculinity/femininity and uncertainty avoidance. Countries' differing positions on these cultural dimensions will effect their business interactions.

Table 1: The Value of French and the UK's Imports and Exports to and from Each Other (millions US dollars)

Country	1999	2000	2001 Q1	2001 Q2	2001 Q3
France's imports from UK	2,057.6	2,053.3	2,020.2	1,845.6	1,603.3
UK imports from France	2,476.6	2,284.7	2,425.5	2,344.4	2,105.3
France's exports to UK	2,587.4	2,448.1	2,551.8	2,339.4	2,226.6
UK's exports to France	2,295.0	2,321.4	2,497.0	2,282.3	2,052.2

(Source: OECD 2001)

The objective of this paper is to compare the adoption and perceptions of IT in UK and French companies and to examine whether culture can be used to explain any similarities or differences. In particular UK and French companies' adoption, frequency of use and perceived usefulness of various communication methods are being compared along with their perceptions of the impact of IT on business-to-business relationships.

Business Relationships and the Influence of Culture.

Business relationships vary in their characteristics across countries. The early IMP research found that supplier-customer relationships do indeed differ between countries. For example the average age of suppliers' export relationships varies from country to country, in France and Britain it was seven years, in Germany it was twelve years and in Sweden it was sixteen years (Turnbull and Valla 1986). The average age of relationships with domestic customers has also been found to vary from country to country, in France it was twenty one years, in Germany it was fifteen years, in Sweden it was twenty four years, in Great Britain it was thirty years. The formality of relationships also differs from country to country. For British suppliers formal relationships are an exception (only 19% are described as formal), however for German supplier relationships almost half are described as formal (45%), for Sweden 37% are described as formal (Turnbull and Valla 1986). The customers' description of relationships with suppliers also varied, on average French customers described only 48% of the suppliers' relationships as close, Italy described 58% as close and Germany, Sweden and Great Britain described approximately 70% as close. These differences in relationship characteristics and others may be partially explained by culture. Culture is a collective phenomenon as it is partly shared by people living

within the same environment where it is learned (Hofstede 1994). Hofstede (1984) found countries differed along four cultural dimensions, individualism, power distance, uncertainty avoidance and masculinity.

Individualism pertains to societies in which everyone is expected to look after themselves whereas a collectivist society is group oriented. The British exhibit a greater degree of individualism than the French; they score 89 on the individualism index (IDV) and are ranked third whereas France score 71 and are ranked joint tenth (Hofstede 1994). In the more collectivist French society the personal relationship prevails over the task and should be established first whereas in the individualist British society the opposite occurs. This will particularly affect negotiations and decision making; communitarian decision making for example requires time for negotiation to gain consensus rather than voting down dissenters.

France has a greater power distance than Britain, scoring 68 on the power distance index (PDI) and ranking fifteenth as opposed to Great Britain's score of 35 and ranking of joint forty second (Hofstede 1994). In countries with a large power distance, the employees exhibit a greater dependence on their superiors and are unlikely to approach or contradict them whereas in countries with a small power distance the employees are not so dependent on their superiors and have a preference for consultation (Hofstede 1991).

Masculinity is the degree to which society values masculine or feminine qualities; the UK is more masculine than France, scoring 66 on the masculinity index (MAS) and ranking joint ninth whilst France score 43 and rank joint thirty fifth (Hofstede 1994). A masculine society such as the UK, places greater emphasis on high earnings, recognition, advancement and challenging work whereas a feminine society such as France, places more emphasis on qualities such as a good working relationships with superiors, co-operation and employment security.

Uncertainty avoidance, the final cultural dimension, can be defined as the extent to which the members of a culture feel threatened by uncertain or unknown situations. The French prefer to avoid uncertainty more than the British;the French score 86 on the uncertainty avoidance index (UAI) and are ranked joint tenth whilst Great Britain score 35 on the UAI and are ranked joint forty seventh (Hofstede 1994). More anxious cultures are more expressive, the people use gestures and are more emotional whereas in countries with lower uncertainty avoidance, the people are less expressive and do not show their emotions as much. Cultures who avoid uncertainty shun ambiguous situations, preferring to look for structure in their organisations and relationships which makes events predictable and interpretable. They need for predictability and written and unwritten rules.

Overall in collectivist French business, relationships prevail over the task. However greater power distance, uncertainty avoidance and a preference for rules means they abide by the norms and etiquette for establishing relationships which means the companies may take a longer time to get close to each other. In Britain the task may prevail over the establishment of relationships however a smaller power distance and low uncertainty avoidance may mean the British are less inclined to abide by the norms and social etiquette of establishing relationships and establish them slightly quicker and in a more informal manner so they may become closer quicker.

Culture and Information Technology

Cultural differences will not only affect business relationships but also the adoption and perceptions of information technology in business across countries. There are differences in the level of IT infrastructure. European Telework Online (**www.eto.org.uk/eustats/graphs/93-99.htm** 2002) examined the investment in IT per capita in 1999 in the European Union and found a wide variation between countries. Sweden had the highest level of investment with approximately 1,100 euros per head, the UK were investing nearly 800 euros, France approximately 600 euros and Greece only 100 euros, the USA in comparison were investing nearly 1,500 euros. The degree of IT investment will affect the quality of the infrastructure including the depth and sophistication of computer networks, availability, reliability and cost of local phone systems and the penetration of computer hardware and software usage across companies. EDI for example cannot occur without a well-developed communications network; such networks are developed to a far greater degree in USA than Japan and Europe, with smaller emerging markets lagging even further behind. The differences in the level of technological sophistication of different countries and differences in managerial expertise are brought to bear on subjects such as quality control, inventory management, customer service and support and market research and complicates efforts to build relationships in global networks (Terpstra and Sarathy 2000). The laws regarding issues such as establishing commercial relationships with overseas partners and data security vary across countries. Barriers to international business relationships can be created by government regulations, e.g. limits on transborder data flows (TDFs) and on using value added networks (VANs).

The Interaction Approach and the Roles of Face to Face Contact and Information Technology.

In the early 1980's the IMP group postulated that relationships were perceived as "good" if they were long term, close and co-operative (Hakansson 1982). As there were fewer communication channels available then, most relationships were established through face to face visits between the supplier and buyer. Turnbull (1979) found interpersonal contact to have a number of important functions within business relationships; these included information exchange, an assessment role, negotiation and adaptation, a crisis insurance role, a social role and an ego enhancement role. Research has shown interpersonal contact to be especially important in establishing and maintaining long-term relationships (Hakansson 1982). More recently however, it has been argued however that IT based communication channels are becoming the basis of many new relationships (Naudé and Holland 1996).

The growth in information technology has increased the channels for and speed of interorganisational communication. In addition to the post, telephone, and fax, managers now have access to e-mail, mobile phones, the Internet, intranets and extranets as well as audio- and video-conferencing. However, communication via newer electronic media alters the fundamental nature of communication. Rutter (1984) carried out negotiation experiments with differing visual and physical presence cues. He found that moving from face to face contact to audio contact only i.e. as physical presence cues and visual cues were removed, communication became increasingly psychologically distant, more depersonalised, increasingly task oriented, less spontaneous and less collaborative. The respondents were more likely to compromise in a face to face situation than when using electronic methods of

communication. A considerable amount of research has compared negotiation processes carried out via e-mail and face to face contact (Morris, Nadler, Kurtzberg and Thompson 2000, Thompson and Nadler 2002). The amount of information exchanged differs between face to face and e-mail situations. In face to face situations, there is greater degree of "turn taking" between the participants which leads to increased discussion and a greater amount of information being exchanged (Morris et al 2000, Thompson and Nadler 2002). People meeting face to face take the opportunity to ask questions to clarify issues and also mutually correct each other whereas in electronic negotiations people make assumptions and attempt to interpret the other participant's behaviour (Morris et al 2000).

Tickle-Dengen and Rosenthal (1990) found face to face contact lead to a greater rapport between participants which improved the outcome of the negotiation. They also found rapport to be a powerful determinant of the establishment of trust. Negotiators who attempted to build rapport engendered more positive emotion and trust than negotiators who attempted to dominate (Tiedens, Thompson, Morris and Nadler 1999 op cit Thompson and Nadler 2002).

Negotiations via electronic media are not so constrained by the etiquette and social norms of face to face visits. People negotiating via e-mail are more likely to show feelings that would otherwise be masked in a socially appropriate way. E-negotiators have a greater tendency to imperil their relationships by making more threats and issuing more ultimatums than face to face negotiators (Morris et al 2000); in fact they are eight times more likely to have a disagreement than face to face negotiators (Dubrovsky, Kiesler and Sethna 1991). This confrontational approach is due to the negotiator paying more attention to the content of the e-mail and less attention to the etiquette and norms of the situation. Negotiators interacting via e-mail were also more likely to suspect the other party of lying or deceiving them compared to face to face negotiators, yet e-negotiators were no more likely than face to face negotiators to lie (Fortune and Brodt 2000). Interactions via e-mail lack the rapport established through face to face meetings which encourages feelings of anonymity and social distance leading to the impression that the relationship is temporary and fleeting (Kiesler and Sproull 1992).

Thus, there is increasing research evidence that IT has the potential to change and to adversely affect how businesses interact. The use of new technology is leading to increasing task orientation, increasing confrontation, less compromise and less personal interaction which in turn can lead to less co-operation and trust which will in turn affect other dimensions of the relationship atmosphere such as commitment. The resulting negative relationship atmosphere will influence all aspects of the business interactions.

The reality of whether IT is actually having a negative impact on relationships depends on its uptake and use by companies. Leek et al (2003) found penetration of the newer methods of communication to be variable; 100% of companies sampled in the UK used mobile phones and e-mail but only 28% used extranets and 53% used intranets. The degree of face to face interaction in business relationships will also contribute to determining the effects of IT on business relationships. If face to face contact is reduced then it will negatively impact on relationships. Currently, face to face contact does not seem to be decreasing with the introduction of newer methods of communication. However, as the penetration of the newer technologies in the UK

increases then it is possible that IT's negative affect on business relationships may become more apparent.

RESEARCH

Objectives

In the previous sections business relationships have been discussed taking into account culture and the effect of information technology. It has been proposed that new communications may be expected to dramatically change the way companies do business but realistically is information technology changing the nature of business and is it changing business in the same way across national boundaries? As part of an international collaborative research project several questions were raised,

- Do French and British suppliers and buyers vary in their utilisation of IT? How do they anticipate their usage changing in the future?
- How do French and British suppliers' and buyers' perceptions of the usefulness of the various communication methods vary? How do they anticipate the usefulness changing in the future?
- Are French and British suppliers' and buyers' attitudes to information technology similar, if not how do they differ?

Methodology

The research reported here is part of the continuing IMP international research project investigating a number of changes in the external environment which have affected business interactions, relationships and networks, of which information technology is just one.

The qualitative research was conducted in the United Kingdom and entailed twenty-one semi-structured interviews with marketing and purchasing managers. The data obtained from these was used to test and refine the questionnaire which was subsequently mailed to a sample of marketing and purchasing managers in the auto/electrical component manufacturing sector and financial services sector in the UK. The questionnaire was translated into French then translated back into English to ensure the meaning was the same for both versions of the survey. It was then distributed to a selection of industries in France including manufacturers of pharmaceutical products, food products, food, electrical appliances.

As a number of issues were investigated in the survey there were a limited number of questions relating to information technology. The respondents were asked to rate the current and future usefulness of various methods of communication on a 5 point scale from 1-Not useful to 5-Extremely useful. In addition frequency of use in the past, present and future was investigated using a nine point scale. Attitudes to IT were examined through fifteen statements with which the respondents had to indicate their degree of agreement and disagreement on a 5 point scale, from 1-Strongly Disagree to 5-Strongly Agree.

RESULTS AND DISCUSSION

Table 1 describes the make up of the sample in terms of nationality and suppliers/buyers. Forty eight percent of the companies are in manufacturing, 21.3% are in financial services, 2.7% are in telecommunications and 28.0% are classified as miscellaneous.

Table 1
The Sample

	UK	French
Suppliers	22.8% (n=52)	36.0% (n=82)
Buyers	25.0% (n=57)	16.2% (n=37)
Total	47.8% (n=109)	52.2% (n=119)

The Penetration of IT and its Frequency of Use and Perceived Usefulness.

There are some interesting interactions between the penetration, use and perceived usefulness of IT. The penetration of IT is greater in France than the UK despite the greater investment in the UK (See Table 2). However this does not necessarily translate automatically into the French having a greater degree of use or a more positive perception of IT.

The first wave of technologies, the telephone and fax, are still used by the vast majority of French and UK suppliers and buyers. Mobile phones and e-mail, both second wave technologies, have successfully diffused through French and British society, reflected in their use by the vast majority of the sample (See Table 2). Differences begin to emerge with the second wave technologies of audio- and video-conferencing and third wave technologies, intranets, extranets and the Internet. France has a greater propensity to have these technologies than the UK despite the fact that they invest less money per capita in IT than the UK (See Table 2). The French are more uncertainty aversive and collectivist than the UK therefore if IT is promoted by the government they may exhibit a greater uptake and possibly a greater degree of compatibility between companies. The more individualistic approach of the UK may result in an erratic uptake of IT and potentially a lower compatibility of systems between companies.

Suppliers in both countries are more inclined to acquire new technology than buyers (See Table 2); this may be due to a desire on the suppliers' part to provide the buyer with an additional competitive advantage which will ensure the company is either selected as or remains a supplier. Reinforcing this perspective is research by Leek et al (2002) who found that buyers in the UK perceive technological competence, capability and innovativeness to be important criteria in managing their relationships. IT capability and competence may be particularly important in distinguishing suppliers if the buyer perceives them as having similar offerings.

Table 2
Suppliers' and Buyers' Uptake of IT

	UK		French	
	Suppliers	**Buyers**	**Suppliers**	**Buyers**
Telephone	100% (51)	100% (55)	98.8% (82)	94.6% (37)
Fax	100% (51)	100% (55)	100% (81)	97.3% (37)
Mobile phone	98% (51)	90.9% (55)	100% (81)	94.6% (37)
Email	100% (51)	100% (55)	98.8% (82)	100% (37)
Audio-conferencing	72% (50)	37% (54)	75.3% (77)	81.1% (37)
Video-conferencing	41.2% (51)	22.6% (53)	73.1% (78)	78.8% (36)

Intranets	70.6% (51)	38.2% (55)	85% (80)	78.8% (36)
Extranets	39.7% (51)	16.7% (54)	71.6% (74)	48.5% (33)
Internet	92.2% (51)	81.5% (55)	95.1% (81)	86.5% (37)

As the French have the greatest uptake of IT it might be surmised that they would also be the most frequent users and have the most positive perceptions of the usefulness of IT. However, this is not the case; overall British suppliers currently have the highest frequency of use of IT and the most positive perceptions of IT, followed by French buyers, French suppliers and finally British buyers (See Table 3 and 4). This pattern is repeated for their anticipated future frequency of use of IT (See Table 3). For future usefulness, the pattern differs slightly French buyers have the most positive perceptions followed by French suppliers, British suppliers and British buyers (See Table 4).

There are differences between French and UK suppliers and buyers use and perceived usefulness of IT,

- British suppliers have the highest frequency of use of the majority of IT communication methods both currently and in the future, except for audio- and video-conferencing (See Table 3). Their use spans all waves of technology. Currently, UK suppliers give the highest usefulness rating to e-mail, intranets and video-conferencing and the second highest to extranets, the Internet and audio-conferencing, all second and third wave technologies. In the future British suppliers give the highest usefulness ratings to intranets and the second highest ratings to extranets and the Internet, all of which are third wave technologies and perhaps the areas where most the important IT developments will occur (See Table 4).

- French buyers have the second overall highest frequency of use of IT; they have the highest frequency of use for audio-conferencing and the second highest frequency of use of the telephone, intranet, extranets, the Internet and video-conferencing (See Table 3). Similarly in the future French buyers anticipate having the highest future frequency of use for audio and video-conferencing and extranets, they also expect to have they second highest frequency of use for intranets and the Internet. They perceive themselves as having a low use of e-mail and fax in the future (See Table 3). French buyers give extranets and the Internet the highest usefulness rating; they give the second highest rating to e-mail, intranets and video-conferencing. They also give the more established communication methods, the telephone and mobile phones, the second highest usefulness rating (See Table 4). The French buyers may be perceived as currently being more up to date with technology than British suppliers as their highest ratings are for the third wave technologies, the Internet and extranets, whereas the British suppliers' highest ratings are for slightly older technologies, e-mail and video-conferencing (See Table 4). French buyers' positive perceptions continue in the future as they give the highest usefulness ratings to a range of first, second and third wave technologies from the phone to extranets (See Table 4).

- French suppliers' current IT use is a little lower than British suppliers and French buyers, whilst they have the second highest frequency of use of mobile phones and e-mail, second wave technologies; they only have the third highest use of intranets, extranets and the Internet and the lowest frequency of use of the

telephone, fax, audio- and video-conferencing (See Table 3). In the future French suppliers will have a comparatively low use of the telephone, fax, e-mail, audio-conferencing, extranets and the Internet but a comparatively high use of mobile phones, intranets and video-conferencing (See Table 3). French suppliers' gave higher usefulness ratings to older, established technologies e.g. the phone, fax and readily implementable technologies e.g. mobile phones and lower ratings to the newer technologies (See Table 4). In the future French suppliers' continue to give slightly older, first and second wave technologies the higher usefulness ratings e.g. fax telephone, mobile phone, e-mail and audio and video-conferencing (See Table 4). They are reticent about the future usefulness of intranets, extranets and the Internet.

- Presently British buyers have the lowest use of mobile phones, e-mail, intranets, extranets and the Internet, something they do not anticipate changing in the near future. They do however have the highest use of video-conferencing (See Table 3). British buyers currently still have a high use of telephone, fax and e-mail and expect this pattern of use to continue in the near future (See Table 3). British buyers' current and future perceptions of the usefulness of IT are the lowest out of the four groups; they give the highest usefulness ratings to older, established technologies and the lowest usefulness rating to second and third wave technologies (See Table 4). In the future British buyers continue to give high usefulness ratings to the older technologies which will not be developed in the future (See Table 4).

Table 3
Suppliers' and Buyers' Current Usage of Various Communication Methods.

Current Frequency of Use	French Supplier	British Supplier	French Buyer	British Buyer	Nation Sup/Buy Nat*Su/bu
Telephone	8.50 n=80	8.98 n=51	8.74 n=34	8.72 n=54	NS
Fax	7.40 n=81	8.20 n=51	7.80 n=35	8.15 n=54	4.94 1 .027* .477 1 .491 .767 1 .382
Mobile Telephone	8.12 n=81	8.34 n=50	7.53 n=32	7.14 n=49	.111 1 .739 12.05 1 .001** 1.38 1 .242
E-mail	8.05 n=81	8.78 n=51	8.00 n=37	7.93 n=54	2.38 1 .124 4.49 1 .035* 3.57 1 .060
Audio-conf	4.26 n=58	4.62 n=37	4.65 n=26	4.58 n=19	NS
Video-conf	3.25 n=56	3.33 n=21	3.33 n=27	3.69 n=34	NS
Intranet	6.71 n=68	7.83 n=36	7.35 n=26	5.89 n=19	.140 1 .709 2.25 1 .136 8.88 1 .003**
Extranet	5.29 n=51	6.90 n=20	6.86 n=14	4.90 n=10	.065 1 .799 .101 1 .752 6.70 1 .011*
Internet	6.76 n=75	8.02 n=47	7.16 n=31	6.39 n=41	.530 1 .468

					3.33 1 .069 9.10 1 .003**
Future Frequency of Use					
Telephone	7.90 n=80	8.86 n=51	8.24 n=33	8.24 n=54	4.25 1 .041* .359 1 .549 4.28 1 .040*
Fax	6.19 n=81	7.12 n=51	5.83 n=35	6.76 n=54	6.00 1 .015* .884 1 .348 .000 1 .998
Mobile Telephone	8.47 n=81	8.74 n=50	7.87 n=31	7.14 n=49	1.05 1 .307 24.2 1 .000** 5.01 1 .026*
E-mail	8.70 n=81	8.96 n=50	8.68 n=37	8.72 n=54	NS
Audio-conf	5.24 n=58	4.84 n=37	6.12 n=26	5.32 n=19	NS
Video-conf	5.60 n=55	5.00 n=21	5.96 n=27	5.08 n=13	NS
Intranet	8.04 n=68	8.58 n=36	8.04 n=27	7.11 n=19	.392 1 .532 5.61 1 .019* 5.50 1 .020*
Extranet	7.31 n=51	8.45 n=20	8.50 n=14	7.30 n=10	.004 1 .950 .001 1 .971 5.37 1 .023*
Internet	8.13 n=76	8.74 n=47	8.42 n=31	8.24 n=42	1.66 1 .200 .425 1 .515 5.61 1 .019*

[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]
[** - sig. at .01 level, * - sig. at .05 level]

Table 4
Suppliers' and Buyers' Perceived Usefulness of Various Communication Methods.

	French Supplier	**British Supplier**	**French Buyer**	**British Buyer**	**Nation Sup/Buy Nat*Su/bu**
Telephone	4.75 n=81	4.57 n=51	4.69 n=35	4.69 n=55	NS
Fax	4.17 n=82	4.12 n=51	4.11 n=36	4.27 n=55	NS
Mobile Telephone	4.28 n=81	4.06 n=50	4.26 n=35	3.58 n=50	11.07 1 .001** 3.50 1 .063 2.80 1 .096
E-mail	3.95 n=81	4.29 n=51	4.24 n=37	3.84 n=55	.058 1 .810 .395 1 .530 8.16 1 .005**
Audio-conf	2.79 n=58	3.00 n=36	2.90 n=30	3.05 n=20	NS
Video-conf	2.72 n=57	2.90 n=21	2.75 n=28	2.67 n=12	NS
Intranet	3.47 n=68	3.72 n=36	3.64 n=28	2.86 n=21	1.93 1 .167 3.25 1 .074 7.28 1 .008**
Extranet	3.19 n=53	3.30 n=20	3.31 n=16	3.11 n=9	NS

Internet	3.25 n=77	3.53 n=47	3.66 n=32	3.14 n=44	.522 1 .471 .002 1 .966 6.14 1 .014*
Future Perceived Usefulness					
Telephone	4.18 n=79	4.06 n=51	4.38 n=34	4.18 n=55	NS
Fax	3.30 n=80	3.14 n=51	3.03 n=36	3.19 n=54	NS
Mobile Telephone	4.67 n=81	4.40 n=50	4.68 n=34	3.80 n=50	24.2 1 .000** 6.45 1 .012* 6.88 1 1.009*
E-mail	4.91 n=80	4.78 n=51	4.95 n=37	4.63 n=54	9.65 1 .002** .718 1 .398 1.73 1 .190
Audio-conf	3.41 n=56	3.16 n=37	3.85 n=27	3.29 n=21	NS
Video-conf	3.82 n=56	3.52 n=21	4.08 n=26	3.69 n=13	NS
Intranet	4.37 n=68	4.61 n=36	4.50 n=28	4.19 n=21	NS
Extranet	4.32 n=53	4.50 n=20	4.56 n=16	4.20 n=10	NS
Internet	4.49 n=77	4.62 n=47	4.77 n=31	4.52 n=44	NS

[1-Not useful, 2-Quite useful, 3-Useful, 4-Very useful, 5-Extremely useful]
[** - sig. at .01 level, * - sig. at .05 level]

British suppliers have a lower uptake of IT than both French suppliers and buyers but overall they have the highest use and perceived usefulness. This may be due to a differing strategies for investing in IT, whereas the French may have invested in the hardware and software, the UK may have invested in training. The training enables the employees to maximise the use of IT which leads to positive perceptions. Underlying this may be cultural differences in managing relationships. The French being more feminine, are relationship oriented. They are also inclined to avoid ambiguity and uncertainty which may cause them to be reticent in their use of IT. Therefore rather than using IT as the main forms of communication in business they may be maintaining their relationships largely through face to face contact. The French may prefer face to face interaction as it is a richer communication method encompassing a huge number of visual and audio cues which encourages the development of rapport and trust (Tickle-Dengen and Rosenthal 1990, Tiedens, Thompson, Moris and Nadler 1999 op cit Thompson and Nadler 2002). It maintains the closeness which may have taken them some time to establish. They may be reluctant to use IT due to its impersonal nature which they may perceive will lead to the loss of some of the closeness in the relationship. The British however are more masculine and more comfortable with uncertainty and ambiguity. They may be more willing than the French to try new methods of communication. In being more masculine they may also be more achievement/goal oriented therefore they have a more pragmatic perspective and use IT because it will help them achieve their task more efficiently. They may be less concerned with a relational approach.

French buyers have a higher frequency of use and perceived usefulness than French suppliers, even though their uptake is not quite as high which suggests they have invested in both hardware and software and training.

Although French suppliers have the highest penetration of IT, greater than French buyers and both UK suppliers and UK buyers, their use and positive perceptions are lower than British suppliers and French buyers. There are a number of possible explanations. As stated earlier the French are relationship oriented and may prefer to

establish and maintain relationships through face to face contact. The installation of inappropriate hardware or software and/or a lack of training may have prevented maximal use of IT. Negative experiences may also have discouraged further use, for example there may have been mismatching technology with buyers etc.

British buyers have the lowest penetration, overall frequency of use and perceived usefulness. They are relying on older, first wave technolgies for communication. Leek et al (2002) found that British buyers look for technological competence and innovativeness in their suppliers. So what are they expecting suppliers to contribute to them in terms of IT? With their limited uptake and therefore experience of new technology how can the British buyers assess the value of suppliers' technological competence, capability and innovativeness?

In the UK the suppliers have a higher frequency of use and a more positive perception of IT's usefulness than the buyers. Generally, the buyers select which suppliers to deal with, therefore potential suppliers will be trying to sell themselves to the buyers. In addition to their product offering the suppliers may emphasise their technological competence and innovativeness as providing the buyer with an additional competitive advantage. As stated earlier research has found these criteria to be important to buyers when selecting suppliers (Leek et al 2002). This would explain why British suppliers are more IT literate than British buyers. However, in France the buyers have a higher use and more positive perception of IT than the French suppliers, particularly with regard to the third wave of technologies. The buyers may generally be more proactive in their approach to IT; they know how they can use IT within their own organisation and to deal with their suppliers. Through this approach and the experience gained through international supplier relationships which have utilised IT, they will have learned what IT is capable of and this will have positively affected their perceptions. French buyers' positive perceptions are something which both domestic and foreign suppliers need to be aware of as their expectations of IT competence, capability and innovativeness from their suppliers may be higher than at least those of UK buyers if not other countries' buyers.

French and British Suppliers' and Buyers' Attitudes to IT

All groups feel that IT has improved communication, although the UK companies were slightly more inclined to feel this than the French (See Table 5, statement 1). The accuracy of communication was also believed to have improved (See Table 5, statement 2).

Both the French and the British thought IT was very useful in terms of its capacity for enabling information to be obtained readily i.e. the Internet enabled them to access information about customers and suppliers (See Table 5, statement 3). The British were significantly more likely to use the Internet to gather information on their competitors than the French (See Table 5, statement 4). The difference in use of the Internet between countries is perhaps indicative of different strategies. French companies are concentrating on building and maintaining their relationships with their suppliers and buyers whereas British companies are looking towards their competitors to see how they are satisfying their customers. This reflects France's greater cultural emphasis on establishing and maintaining relationships and Britain's more task oriented approach.

The French were significantly more likely than the British to think e-mail is an effective way of exchanging information and that it is widely used (See Table 5, statements 5 and 6). This may be due to France's greater collectivism. If IT has been promoted by the government then it may lead to widespread installation of IT hardware and software and e-mail which may explain why it is more common than in the individualistic UK. Suppliers were slightly more likely to hold these perceptions than buyers. Suppliers may feel obliged to maintain the flow of communication with buyers to prevent them from forming relationships with other suppliers particularly if the product is easily obtainable.

IT is affecting the formation of relationships, with British suppliers and buyers being more likely to think IT has enabled them to enter relationships they could not otherwise have entered (See Table 5, statement 13). This cannot be explained by access to IT as the UK's uptake is lower than the French therefore it is possibly due to the cultures having different relationship strategies. All suppliers and buyers use the internet to access information this may enable an auditing function for existing relationships. The information may be used in different ways. The French may bring the information to the attention of their current suppliers as they prefer to deal with companies they "know" i.e. ones they have experience with, this would follow with their preference to avoid uncertainty and their feminine relationship oriented approach. However the UK companies may be willing to risk using a new supplier or approaching a potential customer sourced from the Internet. British suppliers and buyers are quite different in terms of their use and perceptions of IT yet they still believe IT has allowed them to enter relationships. Suppliers being more IT literate have won over new buyers with their technological competence, capability and innovativeness. Buyers although less IT literate may use the Internet at the beginning of a selection process to obtain high tech suppliers or in an auditory capacity i.e. to look for innovations in the market (Easton and Araujo 2003). The suppliers have achieved a greater depth and breadth of use which is necessary to attract UK buyers, whereas the UK buyers' use of IT is more superficial.

Implementation of IT is perceived to have some negative aspects by the British. They were significantly more inclined than the French to think that they were forced to adopt IT platforms by a more powerful counterpart (See Table 5, statement 15). This may be due to companies in other countries such as France with a greater penetration of IT wanting British companies to improve their IT infrastructure so business can be conducted more efficiently. The British are succumbing to this pressure and as a result they think IT is taking up more financial resources than it should (See Table 5, statement 14 sig). British companies are however not investing in IT as much as other countries; they are only investing 800 euros per head as opposed to Sweden's 1,100 euros per head and USA's 1,500 euros per head (ww.eto.org.uk/eustats/graphs/93-99.htm 2002). France is investing less per head, 600 euros, and they do not feel they IT is taking up more financial resources than it should. Both French and British suppliers are significantly developing their use of IT in order to improve their relationships (See Table 5, statement 12). British companies need to improve their infrastructure i.e. invest in establishing intranets and extranets whereas French companies already have the infrastructure but perhaps need to improve their IT skills so that they acquire a greater depth and breadth of use. Development of IT may be more important for suppliers than the buyers as Leek et al (2002) found British buyers thought technological competence, innovativeness and capability were very important in managing relationships. These criteria might also be important to French buyers

and as they already have a high uptake and positive perceptions of IT it will take a high degree of expertise from suppliers to persuade them they are suitable potential suppliers. British buyers need to invest in their IT as otherwise they will find it difficult to do business as suppliers continue to implement new IT solutions which their substandard systems will not be able to incorporate.

The British felt IT has had a considerable influence on how they deal with other companies whereas the French were more inclined to think IT has had a minimal influence (See Table 5, statement 7). The more collectivist, feminine French are more concerned with the norms and etiquette of establishing relationships than the British, therefore they may adhere to the traditional methods of communication for this which in the past has tended to be face to face contact. Both French suppliers and buyers have a high penetration of all methods and are using them all to maintain their relationships. In addition the suppliers are continuing their face to face contact (see Table 5, statements 8 and 9). The British are more masculine, they are less concerned with norms and etiquette so they may feel more able to break with the traditional methods of communication and utilise newer methods. The British buyers may not be inclined to use newer methods of communication but may be forced to.

Neither the British or the French think that IT has reduced the need for face to face visits. The level of face to face contact may differ from country to country. Being feminine and relationship oriented the French have a higher level of interpersonal contact which they have maintained, as they perceive it as reducing both the impersonality and the number of difficulties that may occur. This may also explain why the French do not think IT has had an impact on IT. However, the British do think IT has had an impact and has fundamentally affected relationships. Therefore they must think that IT has affected the processes of communication although penetration of the various methods is quite low. However like the French, they do not think IT has reduced the need for face to face contact or made relationships more difficult to manage. British companies being more masculine and establishing relationships quickly may have fewer meetings anyway and may not be able to reduce the contact any further without damaging the relationship.

Both French and British buyers think IT has reduced the need for visits, significantly more than the suppliers (See Table 5, statements 8 and 9).This is very interesting as the French and British buyers have quite different perceptions of IT, French buyers have more positive perceptions of IT than the British, yet they both think IT is reducing the need for visits. The French buyers have a positive attitude, use and perceived usefulness so they may be actively using IT to communicate with suppliers which means they do not feel the need to meet as often as in the past. This would contradict their underlying cultural inclination to be more relationship oriented if they had dramatically reduced the level of face to face contact, however, they may only have reduced the level of face to face contact minimally. UK buyers are lagging behind in their uptake, use and attitudes to IT.The British buyers may be using IT i.e. e-mail, mobile phones on a superficial level to communicate which has lead them to reduce their interpersonal contact. Both French and British companies are fairly neutral about whether IT has increased the formality of relationships (See Table 5, statement 10). The French are perhaps more formal, preferring to adhere to norms and etiquette and have maintained their formality through face to face contact. The British are less formal and the use of IT leads to communication being less constrained by etiquette (Morris et al 2000).

Neither the French or British suppliers or buyers think that IT has made relationships more difficult to manage due to fewer face to face meetings (See Table 5, statement 11). Penetration of the current methods of communication is quite low in the UK and although it is higher in France the use is quite low which may explain why they do not think IT has made relationships more difficult to manage. This may explain why IT is not as yet adversely affecting relationships, they are relying on older methods and maintaining visits, especially the French. As penetration increases further, more so in the UK and use achieves greater depth then the negative impact of IT on communication may increase and it will be worse for the UK as the French being more relationship oriented they may be more likely to maintain interpersonal contact.

However, IT use is expected to increase in the future and the more feminine, relationship oriented, cultural characteristic of France may moderate any potential problems due to IT. The French will probably continue to value face to face interaction even as their IT literacy increases. The British may be more at risk of encountering problems as their use of IT increases. The use of IT for communicating reduces the norms and etiquette of business interactions which will suit the British who being more masculine are task oriented rather than relationship oriented. In the future e-mail is anticipated as becoming the number one choice for communication, followed by phones and the Internet. Intranets and extranets frequency of use is also expected to increase. These methods of communication have no visual and physical presence cues which has been found to lead to increasing task orientation, depersonalisation etc (Rutter 1984). Research on e-mail negotiations suggests leads to less information exchange, more conflict and less conforming to etiquette of the situation. These may lead to increasing relationship problems. As penetration increases the depth and breadth of use becomes greater, training and people's ability will increase therefore there will potentially be a decrease in face to face contact which as stated may be more problematic for the UK than the French due to perhaps a less relationship oriented approach and more masculine and individualistic cultural characteristics.

Table 5
Suppliers' and Buyers' Attitudes to IT

	French supplier	French buyer	British supplier	British buyer	ANOVA
1) Communication has improved with the introduction of IT	3.55 n=82	3.78 n=37	3.90 n=51	3.95 n=55	Sup/buy 1.11 1 .293 Nat 3.81 1 .052 Sup/buy .526 1 .469
2) It has made communications more accurate	3.44 n=82	3.89 n=36	3.65 n=51	3.62 n=55	NS
3) The internet has enabled us to access useful information about our suppliers/customers	4.19 n=81	3.92 n=37	3.80 n=51	3.79 n=53	NS
4) The Internet has enabled us to access information about our competitors	3.58 n=81	3.67 n=36	4.16 n=51	3.90 n=52	Sup/buy .276 1 .600 Nat 6.59 1 .011* Sup/buy*Nat 1.15 1 .286
5) E-mail is an effective way of exchanging information rapidly	4.70 n=82	4.62 n=37	4.31 n=51	4.05 n=55	Sup/buy 2.09 1 .150 Nat 17.00 1 .000** Sup/buy*Nat .651 1 .420
6) E-mail is not widely used by our suppliers/customers ®	4.26 n=80	4.08 n=37	3.14 n=51	3.00 n=55	Sup/buy 1.22 1 .271 Nat 58.4 1 .000** Sup/buy*Nat .023 1 .879
7) Modern technology has had minimal influence on how we deal with our suppliers/customers ®	2.56 n=82	2.58 n=36	3.90 n=51	3.73 n=55	Sup/buy .192 1 .662 Nat 51.03 1 .000** Sup/buy*Nat .321 1 .572
8) Modern technology has reduced the need for face to face meetings	2.54 n=82	3.08 n=37	2.67 n=51	2.93 n=55	Sup/buy 6.94 1 .009** Nat .006 1 .938 Sup/buy*nat .862 1 .354
9) Modern technology has reduced the need for visits	2.39 n=82	2.81 n=36	2.26 n=50	2.78 n=55	Sup/buy 10.16 1 .002** Nat .274 1 .601 Sup/buy*Nat .131 1 .717

10) The increased use of IT has lead to a more impersonal relationship with our suppliers/customers	2.75 n=79	3.14 n=37	2.66 n=50	2.80 n=55	NS
11) IT has made relationships more difficult to manage as there are fewer face to face meetings	2.17 n=82	2.46 n=37	2.44 n=50	2.51 n=55	NS
12) We are developing our use of IT to improve our relationships	4.04 n=81	3.84 n=37	4.45 n=51	3.95 n=55	Sup/buy 7.89 1 .005** Nat 4.32 1 .039* Sup/buy*Nat 1.49 1 .223
13) IT has allowed us to enter relationships we could not otherwise have entered	2.27 n=80	2.73 n=37	3.16 n=50	3.04 n=54	Sup/buy 1.13 1 .290 Nat 14.54 1 .000** Sup/buy*Nat 3.41 1 .066
14) The implementation of IT is taking up more financial resources than it should	2.78 n=76	2.15 n=33	3.00 n=50	3.33 n=54	Sup/buy 1.02 1 .313 Nat 23.82 1 .000** Sup/buy*Nat 11.07 1 .001**
15) We are forced to adopt IT platforms by a more powerful counterpart	2.28 n=75	2.36 n=36	2.67 n=46	2.74 n=50	Sup/buy .213 1 .645 Nat 5.87 1 .016* Sup/buy*Nat .002 1 .962

1-Strongly disagree – 5-Strongly agree
® - reverse scored item
* - sig. at the 0.05 level, **-sig. at the 0.01 level

Conclusions

The French have a greater propensity to install IT than the British. Despite the French companies' greater uptake, the British suppliers generally had the highest frequency of use and the most positive perceptions of usefulness, followed by the French buyers, French suppliers and finally the British buyers. Both the French and British found IT had improved communications and the capacity for gathering and exchanging information and were continuing to develop their IT with a view to improving their relationships. With regard to IT's impact on relationships the buyers were slightly more likely to think IT has reduced the need for visits. However none of the groups thought IT had made relationships more difficult to manage due to a reduction in face to face meetings.

REFERENCES

Dubrovsky V.J., Kiesler S. and Sethna B.N., (1991) The Equalization Phenomenon: Status Effects in Computer Mediated and Face to Face Decision Making Groups, *Human Computer Interaction,* Vol. 6 pp.119-146

Fortune A. and Brodt S., (2000), Face to face or virtually for the second time around: The Influence of Task, Past Experience and Media on Trust and Deception in Negotiation, (Working Paper), Duke University, Durham NC

Hakansson H. (Ed.), (1982), *International Marketing and Purchasing of Industrial Goods: An Interaction Approach*, John Wiley and Sons, Chichester, New York, Brisbane, Toronto, Singapore

Hakansson H. and Snehota I., (1989), No Business is an Island: The Network Concept of Business Strategy, in D. Ford (Ed), (1997), *Understanding Business Markets,* Second Edition, The Dryden Press, London

Hofstede G., (1984*), Culture's Consequences: International Differences in Work Related Values*, Sage Publications, Beverley Hills

Hofstede G., (1991), *Cultures and Organisations, Software of the Mind*, McGraw-Hill Book Company, London

Hofstede G., (1994), *Cultures and Organizations, Intercultural Cooperation and its Importance for Survival*, Harper Collins Business

Key Note (2000) *Internet Usage in Business*, Key Note Market Reports, London

Kiesler S. and Sproull L., (1992), Group Decision Making and Communication Technology, *Organizational Behaviour and Human Decision Processes,* Vol. 52 pp. 96-123

Leek S., Turnbull P.W. and Naudé P., (2003), How is Information Technology Affecting Business Relationships?, *Industrial Marketing Management,* Vol. 32 No.2 pp.119-126

Leek S., Turnbull P.W. and Naudé P., (2002), Managing Business-to-Business Relationships: An Emerging Model, *Journal of Customer Behaviour,* Vol. 1 No. 3 pp. 357-376

Morris M.W., Nadler J., Kurtzberg T. and Thompson L., (2000), Schmooze or Lose: Social Friction and lubrication in E-mail Negotiations, (Working Paper), Northwestern University, Evanston Illinois

Naudé, P. and Holland, C. P., (1996) *Business-to-business relationships*, in Relationship Marketing, edited by F. Buttle, Paul Chapman Publishing, pp. 40-54

Rutter D.R., (1984), Looking and Seeing The Role of Visual Communication in Social Interaction, John Wiley & Sons, Chichester

Terpstra V. and Sarathy R. (2000), International Marketing Eighth Edition, The Dryden Press, Fort Worth, Philadelphia, San Diego, New York, Orlando, Austin, San Antonio, Toronto, Montreal, London, Sydney, Tokyo Ch 18

Thompson L. and Nadler J., (2002), Negotiating via Information Technology: Theory and Application, *Journal of Social Issues,* Vol. 58 No. 1 pp.109-124

Tickle-Dengen L. and Rosenthal R., (1990), The Nature of Rapport and its Nonverbal Correlates, *Psychological Bulletin,* Vol. 1 No. 4 pp.285-293

Turnbull P.W., (1979), Roles of Personal Contacts in Industrial Export Marketing, in Ford D. (Ed), Understanding Business Markets, Interactions, Relationships, Networks, (1990), Academic Press

Turnbull P.W. and Valla J.-P. (Eds), (1986), *Strategies for International Industrial Marketing,* Croom Helm London, Sydney, Dover , New Hampshire

www.eto.org.uk/eustats/graphs/93-99.htm 2002