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World Wide Web Technology in Support of Negotiation and Communication

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Contents

Abstract

With the advent of the mass use of the Internet involving the classic use of e-mail, file transfer and now the more recent use of www applications, such as home pages, chat, Internet phone, audio and video and web broadcast systems, business transactions over the net are increasing dramatically. An important, yet relatively undeveloped component for electronic commerce is the negotiation of contracts and the resolution of disputes. We discuss Web-based technology and practice in supporting business negotiations and communication. The focus of the paper is on the present and the future promises of such technology.

Keywords: Decision Support; Negotiation Modeling; World-Wide-Web; Internet Communications; Electronic Commerce; Computer-mediated Communication; Technology Diffusion.

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1 Introduction

Increased international competition has forced firms to produce higher quality goods at lower cost. The resulting lean management philosophy has made organizations more streamlined and efficient, producing more with fewer people. Firms, their subsidiaries, subcontractors and customers are often spread throughout the world, placing increasing demands on communications and negotiations among entities. Long distance travel by employees is demanding, time consuming and expensive. This pressure to more efficiently conduct world-wide business transactions has lead to a natural increase in the demand for telecommunications.

Together with lean management and downsizing, the Internet and various internal company intranets have experienced phenomenal growth over the last 3 years. All predictions point to continued exponential growth in their use. With the development of encryption technologies embedded within recent web browsers, more credit card transactions have occurred over the net. In addition, with the perfection of electronic payment systems, the growth trend is likely to continue for millions of new very small business transactions, and also some very large transactions. As a result, the concept of a market place is changing to a global market space as anticipated by Rayport and Sviokla (1994).

Business transactions over the net are dramatically increasing. The number of households alone in Western Europe using the Internet for shopping is predicted to increase from current 1% to 4% by year 2000. At the same time, the number of households possessing Internet connections is predicted to increase from 4% in 1997 to 16% in 2000 in Western Europe (Business Week, February 9, 1998, pp. 14-15). The growth in the US will be even faster. The technology offers a variety of options, such as classic e-mail, file transfer and now the more recent use of www applications including home pages, chat, Internet phone, audio and video, and web broadcast systems. Many of the technologies are currently being used by hobbyists and pioneers. Their popularity is expected to enormously increase, once some of the technical hurdles have been resolved and partly as a result of this, the technology will become even more user-friendly.

An important, yet relatively undeveloped component for electronic commerce is the negotiation of contracts and the resolution of disputes. For additional details, see DeSanctis and Gallupe (1987), and Teich, Wallenius and Wallenius (1994). The purpose of our paper is to discuss Web-based technology and practice in supporting business negotiations and communication. The focus of this paper is on the present and the future promises of such technology.

2 State of the Art in Internet Communication Software

The state of the art in Internet communications is rapidly changing. It all started with e-mail which spread to common use, along with the Internet, in mid 1990's. The different aspects of the use and style of e-mail communication are being extensively explored (computer-mediated communication; Kettinger and Grover, 1997; Sproull and Keisler, 1991; Steinfield, 1986). Today commercial companies offer numerous platforms for aiding Internet communications. One visible trend is that the features of different software systems are beginning to overlap and mergers of several companies may also occur. We provide several examples of popular software systems available at the beginning of 1998, but not an exhaustive list of such systems.

One of the most popular e-mail systems is Eudora. Its features include paging, faxing, voice mail, PGP encryption, virus protection, viewing attachments, chat, and standard e-mail, among others. Information regarding this software can be located at http:// www.eudora.com.

A popular chat program is ICHAT. Its features include a chat room platform, paging systems, and message boards. The software can be downloaded at http:// www.ichat.com. Many web-sites have their own chat programs that do not require additional plug-ins.

ICQ, a related software, similar to the 'buddy list' on America On Line (AOL), which indicates when your friends, family, and colleagues are logged on to the net, facilitates real-time private chat. It can be downloaded from http://www.icq.com. As of February, 1998, ICQ had 8,000,000 subscribers and 400,000 simultaneous users on-line.

Net-meeting is a Microsoft meeting software package. It includes the possibility to exchange graphics on an electronic whiteboard, to transfer files, to use the text-based chat program, to communicate with both audio and video and to collaborate on any windows-based application. The URL is: http://www.microsoft.com/netmeeting.

The above platforms represent basically what DeSanctis and Gallupe (1987) refer to as 'level one' communication support tools. There exist, however, a few more analytical 'level two' negotiation support tools. In sections 4 and 5 we briefly describe several such tools and sites. We anticipate that their use will increase in the future.

3 Exploratory Survey of Internet Use

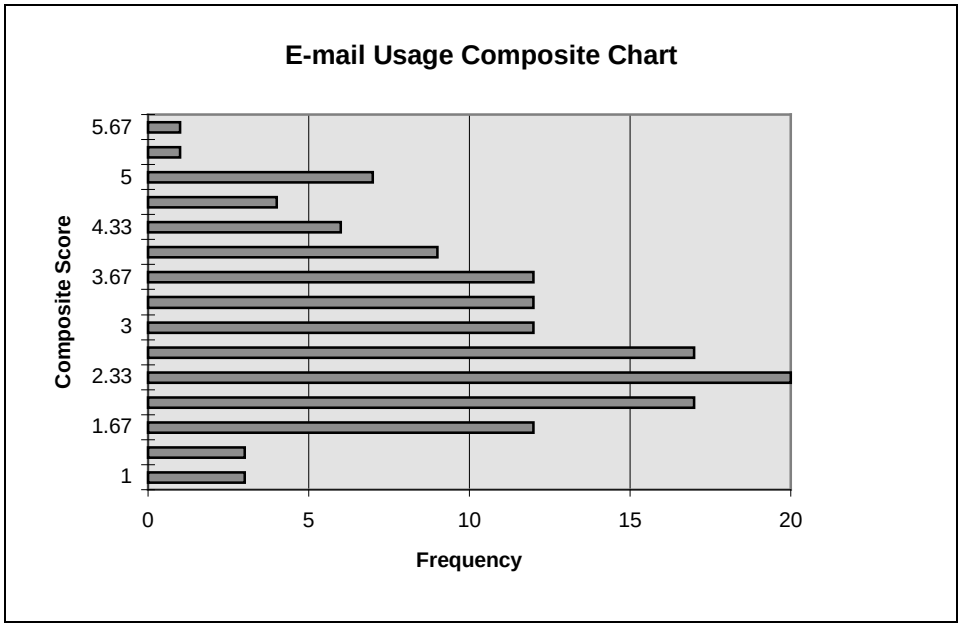
In order to learn insights about directions in which future Internet and other communication technologies will develop, we interviewed 138 current PC/Mac/ Workstation users primarily in Finnish companies varying in size. The number of Internet hosts per capita is highest in Finland compared to the rest of the world. Hence, the survey data reflect a situation in a country which is at the leading edge of

communication technology in general. Some of the companies were multinationals, including Nokia, Telecom Finland, and Citibank. To some degree, but not to the full extent, our sampling procedure was random. Our MBA students approached their colleagues and requested their cooperation. Due to the informal sampling procedure, we treat the data and results as exploratory. Hence the reader should take caution in interpreting the results. The average age of the persons interviewed was 36 years and they typically had a university degree in a variety of fields, including engineering, law, business, medicine, education, etc. The questionnaire is reproduced in the appendix.

Next we describe the results of our survey.

Frequency of use of the Internet technology

Not surprisingly, e-mail is by far the most popular Internet mode of usage. E-mail is typically used either on an hourly or daily basis for contacting colleagues, customers, etc. Only 12 of our interviewees responded that they never or seldom used e-mail. As can be seen from the survey, three questions concerned different aspects of the use of e-mail, including communicating with colleagues locally, internationally, and contacting business associates outside the company. In Figure 1, the mean composite usage of the above three aspects is graphically represented.



Key: Composite Score: 1=hourly, 2=daily, 3=weekly, 4=monthly, 5=seldom, 6=never

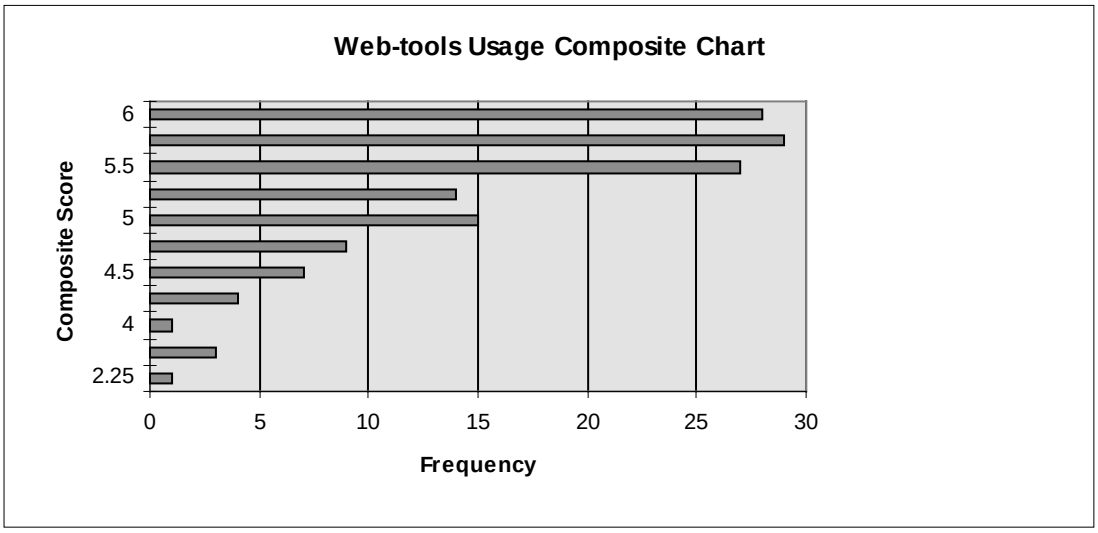
Figure 1: E-mail Usage Composite Chart

Of the 138 individuals, 120 worked for companies which had a company home page. However, only 14 individuals had a personal home page. Companies typically used their home pages for advertising and information delivery to clients. Twenty-seven of the individuals worked for companies which, in addition, used the home page as a vehicle for direct sales.

In the survey, questions 7-10 dealt with the frequency of use of different web-based technologies such as chat, downloading, meeting technology, and Internet phone. Again the composite chart, reporting the mean usage of such technologies is reported in

Figure 2. Compared to e-mail, with the exception of downloading, the use of these technologies is quite rare. Only a small number of interviewees used chat, Internet phone or meeting technologies on a regular basis. Part of the reason contributing to this fact is that meeting and phone technologies have existed only for the past few years and are still in an experimental, and to some degree "hobbyist" phase. Of course, because most of our interviewees were Finns, their use of Internet Service Providers (ISP), such as America On Line (AOL), which include chat, "buddy lists", etc. in the software provided from the ISP, would perhaps be less than Americans' use of such technologies. One should, however, remember that AOL usage is primarily private, non company. There may be a relationship however, in that a person who has been using chat and related technologies at home for entertainment purposes may find it more natural to use such technologies in a business context as well.

In the survey, we were also interested in the interviewees' perception of the typical use of the above technologies company-wide. Table 1 reproduces the results. Again, e-mail and downloading are the most popular services used.



Key: Composite Score: 1=hourly, 2=daily, 3=weekly, 4=monthly, 5=seldom, 6=never

Figure 2: Web-tools Usage Composite Chart

Table 1: Typical Company-Wide Use of Communications Technology

Name	Hourly	Daily	Weekly	Monthly	Seldom	Not at all
E-mail	72	50	10	2	2	1
Chat	2	10	12	8	36	64
Internet Phone	2	6	3	2	21	93
Downloading	3	41	19	21	26	19
Buying/Selling	7	20	7	12	32	50
Negotiating	6	9	8	12	33	59
Non-net Video Conferencing	1	10	11	15	23	69

In the survey, we were also interested in the reasons limiting further use of the Internet in communication and negotiation. Figure 3 provides a Pareto Chart, detailing the frequencies of such limiting reasons. The most common reasons were that the interviewees thought that the use of the technologies was too time consuming. The use, the downloading (and upgrading) of programs, and the learning of the various packages were all time consuming. Many users also felt that security issues were not fully resolved yet, and in fact many companies had firewalls restricting access to and from the Internet. Another major concern was the slow speed of the connection and too small bandwidth clearly restricting the transfer rate of video and audio. With recent advances in encryption and bandwidth/modem and wireless technology, many of these problems will be resolved. Lack of proper equipment and access was also often mentioned. In fact, only four of our interviewees possessed a video camera attached to their computer.

Has the Internet improved efficiency in communication? Forty-six percent of the interviewees responded, "yes, significantly", and 36% responded "to some extent". Twelve percent indicated "very little" and 4% "not at all". No one indicated a negative impact.

Questions 14-16 probed the interviewees about the Internet negotiation aspects of business. Twenty-one percent of the respondents conducted negotiations over the net, primarily using e-mail. Slightly more than 50% of the respondents would be willing to use negotiation support tools if provided.

We also performed an extensive correlation analysis of the survey variables. The composite variable correlations are Pearson's and the Likert-type variable correlations are Kendall's tau-b. The correlations of interest follow:

"Net people are Net people".
The overall (composite) use of e-mail was significantly correlated with overall (composite) use of web technology with a correlation coefficient of 0.29 (p-value = 0.001[1]). The relatively low value of the correlation coefficient can be explained by the low overall usage of web technologies.

"Net people perceive higher net use in companies"
We found a significant correlation (0.29, p-value = 0.001) between individual e-mail usage and the company-wide perceived web technology usage (composite mean consisting of company-wide use of chat, Internet phone and downloading) and between individual use of web technology and perceived company-wide usage of web technology (0.38, p-value = .000).

"*Larger companies use more e-mail and web technology*"
We found significant correlations between company size and overall (composite) e-mail usage (0.23, p-value = .000) and between company size and perceived company-wide overall (composite) usage of web technology (0.13, p-value = 0.041). The results appear rather natural, since larger companies must have more need for communication in general. On the other hand, the correlation between the size of the company and the individual use of overall (composite) web technology was not statistically significant.

[1] As stated previously, because of our informal "stratified" sampling procedure, strictly speaking, a correction factor should be applied to the reported p-values. Since most of the reported p-values are small, we have not applied them.

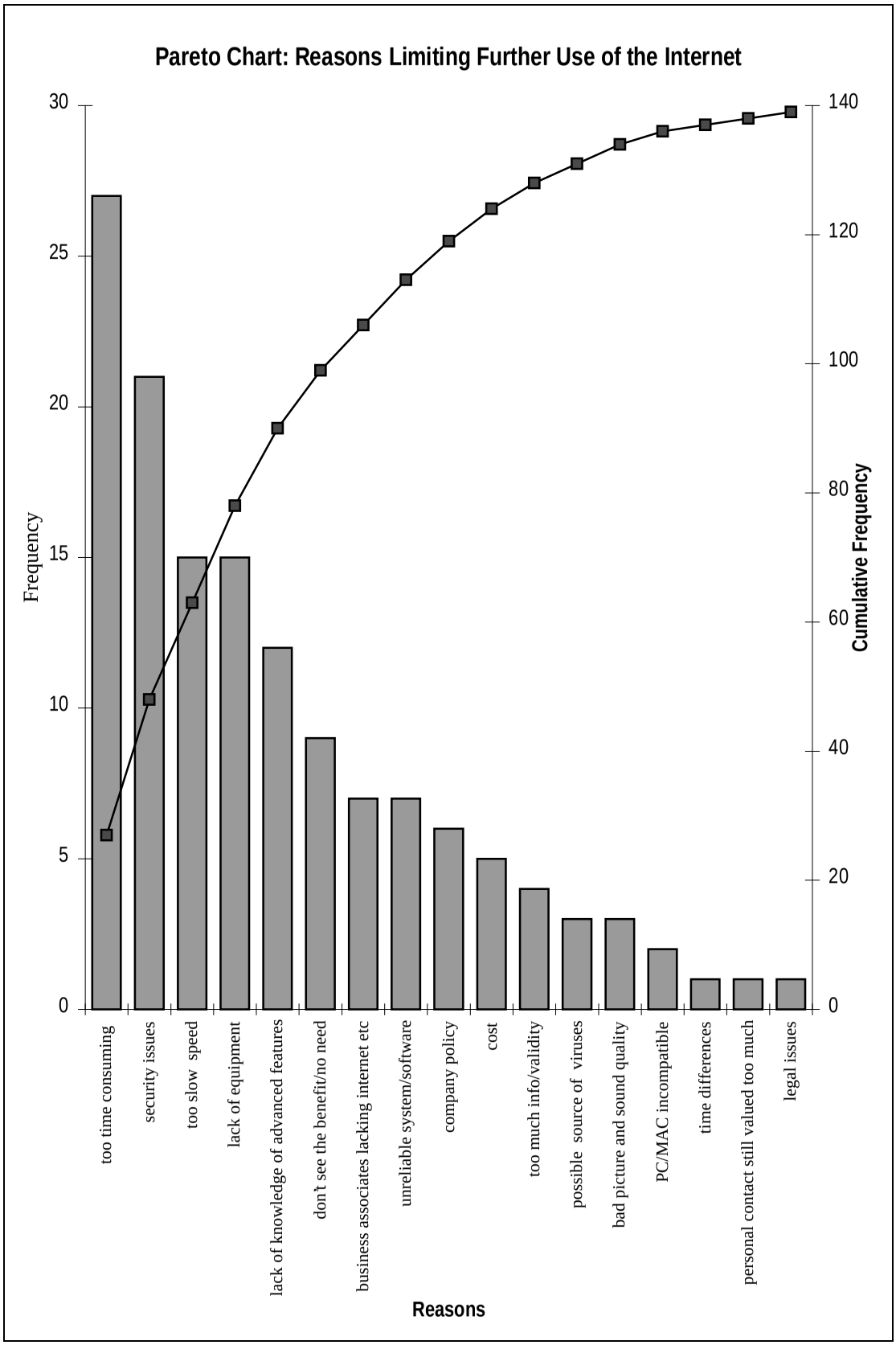


Figure 3: Pareto chart: Reasons limiting further use of the Internet.

"*International e-mail users negotiate over the web*"
We found a significant correlation (0.23, p-value = 0.007) between the international e-mail usage and the fact that respondents would use the Internet (primarily e-mail) for negotiation purposes. This result is to be expected because global companies have a need for more efficient communication and negotiation channels without resorting to international travel.

"*The use of E-mail and web technology improves the efficiency of communication*"
We found significant correlations (0.34, p-value = .000) between perceived efficiency improvement of communications and overall e-mail usage and between perceived efficiency improvement of communications and overall web-technology usage (0.28, p-value = .000).

The above survey results provide some idea of the current use of Internet technology in Finnish companies. Diffusion of these and other communication technologies is an interesting question (Agarwal and Prasad, 1997). The Rogers (1983) model of diffusion, and particularly the network model, may provide a source of explanation of the phenomenon investigated above. See also Mahajan et al. (1990). Rogers (1983) in his book, classified the initial purchasers of new consumer durable goods into 'innovators', 'early adopters', 'early majority', 'late majority', and 'laggards'. In terms of e-mail usage, the companies/individuals are already in the state of 'late majority'. On the other hand, in terms of newer Internet technologies, the telecommunication companies/individuals and a few others are 'innovators' but the majority are not. The Internet, as networks in general, exhibits positive network externalities which originate from returns to scale (Economides, 1996). The spread of e-mail usage in many countries seems to have reached the "critical mass", that is a sufficiently large number of users so that it makes sense for others to join the network (Economides and Himmelberg, 1995). We predict that other Internet usage will follow a similar pattern.

4 Computer Support for Negotiation

The foundations of **Group Decision Support Systems** (GDSS) were laid out by DeSanctis and Gallupe (1987). Much of the research that followed concentrated on improving communications among participants, although research seeking to support negotiators with analytical tools was also popular. DeSanctis and Gallupe (1987) classified systems whose primary goal was to improve communications between participants as level one GDSS. Their classification defines level two GDSS by the use of analytical models to support negotiators. Level three GDSS contains an expert systems component. Level 1, 2 or 3 systems would have to be computerized to be of practical value. The systems that we refer to have originally been developed for a PC/Mac environment, although in many cases the authors have an interest in developing net versions of their systems.

Negotiation Support Systems (NSS) are GDSSs specifically designed for conflict resolution in the negotiation process. Three main reasons why a good NSS has potential in aiding negotiations are:

1. To increase the likelihood that an agreement is reached when a zone of agreement exists (solutions that both parties would accept).
2. To guarantee the Pareto optimality of an agreement.

3. To decrease the direct and indirect costs of negotiations, such as costs caused by time delays (strikes, violence), and attorneys' fees, among others.

The need for a NSS is exemplified by Thompson and Hastie (1990) who state that "negotiators often settle for suboptimal compromise agreements rather than integrate their interests."

The research field of NSSs is currently in the growth stage. The idea of using computers to aid the process of negotiations began in the 1960's. The last decade has witnessed the development of many NSSs. Several NSSs have been designed and tested, but as of yet, their full potential has not been realized by practitioners.

Level One Support

Level one support type communication systems have found widespread acceptance and use all over the world. Most of these systems are simple "same time -- same place" decision rooms, with linked computers and a facilitator. Brainstorming is easy. Participants can enter their communications anonymously if they so desire, encouraging a free and uninhibited exchange of ideas. Extensive experimentation verifies that such decision rooms have, indeed, been successful in improving the communications among the participants. For some early tests of decision rooms, see Pinsonneault and Kraemer (1990). In the last couple of years, much progress has been made in improving the implementation of the decision room concept.

The most successful decision room system and software has been developed by Nunamaker and his colleagues at the University of Arizona. This system, called GroupSystem, is commercially available through Ventana Corporation, Tucson, Arizona. The primary use of this and other decision rooms is in intra-organization meetings. Furthermore, LotusNotes from Lotus Corporation, though not decision room software per se, is a mass marketed groupware package designed to facilitate team work.

Level Two Support

Level two GDSS seek to support negotiators by analytical tools by structuring the negotiations, providing suggestions for concessions or Pareto improvements. Examples of such anlytical tools are Nadir Ordinal Ranking Approach (NORA) which develops parties' "preference paths" through the issue space (Korhonen, Oretskin, Teich, Wallenius, 1995); and the Directional Search approach which seeks to find preferred directions to an initial settlement (Teich, Wallenius, Wallenius, Zionts, 1996). Commercially available level two software is Team Expert Choice, which utilizes Saaty's AHP (Saaty and Alexander, 1989), and HIPRE 3+ Group Link by the Systems Analysis Laboratory, Helsinki University of Technology, Espoo, Finland (Hämäläinen and Kettunen, 1994), which uses the AHP and other decision support tools. Read and Gear (1994) have developed an interesting decision conferencing system, called Teamworker, which places an inexpensive device (similar to a television remote control unit) in the hands of participants. Radio signals are transmitted to a radio receiver connected to a personal computer that utilizes the information from the participants. See also Gear and Read (1993).

With the maturation of the field, we are likely to witness many more applications of level two GDSS to real situations. In addition, generic systems which can handle different types of negotiations with varying degrees of conflict will be developed. These generic systems will hopefully be able to handle a variety of decision situations from

arbitration to mediation, from individual, to party, to group support. Cooperation among researchers and practitioners will be necessary to develop such generic systems.

Level Three Support

Level three support systems include an Expert System, AI, or a neural network component. An idea is to learn from past negotiations and experiences. Sycara's model is based on case based-reasoning (Sycara, 1993), when past cases of similar situations exist. In other circumstances her model is based on Multiattribute Utility Theory. Kersten et al. (1988) use the rule-based NEGOPLAN system, based on restructurable negotiations.

5 Supporting Negotiations Over the Net

Supporting negotiations over the net has great potential for many applications, including multiple issue, multiple party business transactions of buy/sell nature, international dispute resolution (business disputes, political disputes), internal company negotiations and communications, brainstorming, divorce mediation, among others.

We next provide a discussion of relevant negotiation web sites as of March 1998.

The Ventana Group, as discussed previously, is now expanding into GroupSystems for the web. GroupSystems is a suite of team-based decision software tools with the purpose of helping groups reach decisions. It consists of the following modules: Standard Tools, Survey, Alternative Analysis, and Activity Modeler, which all operate under the GroupSystems framework. The Standard Tools support various business functions through brainstorming, voting, prioritizing, consensus building, etc. Survey can be used for conducting and analyzing the results of on-line surveys. Alternative Analysis facilitates the exploration of strengths and weaknesses of plans, determination of the impact of a plan on stakeholders, etc. Activity Modeler allows a group to work directly on a graphical model of business processes. (http://www.ventana.com/)

INSPIRE is a cutting-edge web-based negotiation support system. It has been developed at the Centre for Computer Assisted Management at Carleton University in Ottawa, Canada, with collaborators and users in several countries. INSPIRE can be used for preparing for negotiations, conducting actual negotiations, and in post-settlement negotiations during which the parties have the option of renegotiating a settlement. It contains facilities for specification of preferences and assessment of offers, an internal messaging system, graphical displays of the negotiation process, among others. The site also includes an extensive bibliography of the negotiation literature and other information. (http://sebastian.carleton.ca/inspire/)

The Systems Analysis Laboratory at the Helsinki University of Technology has developed a decision support site using their previously developed HIPRE3+ software. The purpose of the software is to provide help in problem structuring, multicriteria evaluation and prioritization for individuals and potentially for groups. HIPRE is used for the analysis of value trees, where the problem is structured hierarchically from criteria to subcriteria. The software has several options for eliciting the user's preferences, including direct weighting, SMART (Edwards, 1977) and extensions, AHP (Saaty and Alexander, 1989), and value functions. (http://www.hipre.hut.fi/)

ICONS (International Communication and Negotiation Simulations) offers educational simulations of international relations. Subjects represent the decision makers of a particular country and negotiate solutions to global problems over the Web. Examples

of such problems are arms control, the Middle East, human rights, international trade, etc. (http://www.bsos.umd.edu/icons/icons.html)

The 'Negotiation and Collaboration in Electronic Commerce' site has been developed by the Fisher Center for Management and Information Technology, University of California, Berkeley. This site seeks to address the issues of theory and implementation for negotiation processes within the context of electronic commerce. The project concentrates on either semi-automated or fully automated negotiations in competitive, rather than cooperative business situations. The settlement will be between two parties, although many parties may be initially involved in the negotiations. An extensive bibliography and lists of other related sites is included. (http://haas. berkeley.edu/~citm/nego-proj.html)

The 'Information Economy' site, developed by the School of Information Management and Systems at the University of California, Berkeley, is not a negotiation site per se. It does, however, present an extensive list and information regarding the economics of the Internet, electronic commerce and publishing, network economics, information goods, intellectual property and related issues. (http://www. sims.berkeley.edu/resources/ infoecon/; http:// www.sims. berkeley.edu/ resources/ infoecon/Commerce.html).

A commercial venture, a real-time Virtual International Trade Exchange that brings together international negotiators interested in trade is the 'Trading Floor'. It is apparently the most comprehensive import-export information service available. It contains, for example, price information on over 15,000 products; hundreds of international market reports on products and industries of interest to the traders. The 'Trading Floor' makes it possible to make offers and bids and negotiate, network, or chat with trade partners from around the world. (http://trading.wmw.com/).

Another very large commercial venture is the 'Forum' site from AltaVista. It makes it possible for companies to build their own office libraries, containing searchable office documents. The site contains a universal storage and management area for office documents, accessible through the Internet. This way business managers can have instant access to their key business documents, whether working at home or traveling. (http://altavista.software.digital.com/forum/products/index.htm)

Guidelines for Developing a Generic Negotiation Site

Based on a study of several existing sites and blended with our own ideas, we believe that a generic negotiation site should have the following features:

1. The site's home page itself, with access to multimedia communication channels, such as chat, voice, white board, bulletin board, video, all designed for public use, private between party use, private within party use and private individual to individual use.

   The main page might provide access to all features of the site: required programs download, descriptions of different services and features, guide, demo for newcomers, login for experienced users, and a search engine. The site could include an optimal feature to gather data about every action taken during the sessions to document the negotiation process and/or outcome.

2. A matchmaking feature designed to bring together negotiating partners, such as buyers and sellers. Such features could include a submission form to include one's own information to a user's database and a search engine to find partners.

3. Analytical plug-ins or Java applets, incorporating negotiation support for the users with the purpose of helping parties structure negotiations, aid in locating an initial settlement, aid in finding Pareto preferred settlements, and ensuring the Pareto optimality of the settlement.
4. An example problem for negotiators to demonstrate the use of the support tools and other features of the site combined with a simulation game to encourage users to practice their negotiation skills and be trained in analytical techniques.
5. Documentation of the site.

- A video and/or a web-based animated guide to teach users the fundamentals of the site in multiple languages.
- Hyperlinks to related sites.
- Other links to literature, guides, reviews, conferences, other services etc.

Potential benefits of such a site include neutral third-party computerized mediation support over the net, potential cost savings to negotiators, and facilitation of business negotiations.

6 Visions of the Future

Mainstream use of Internet technologies in communications and especially negotiations is probably at least a few years in the future. The technology exists, although some aspects of it (e.g. bandwidth) and the accompanying software need improvements. Of course there may be some resistance among humans, in general, to accepting computer-based negotiation support. With very good reasons, the resistance, in a Neo-Luddite fashion, towards more advanced aspects of technology is understandable and justified. We are not advocating the automatic use of the following potential technologies. We are merely predicting what could be available at some point.

Refer to Figure 4. In the short term, we will see the Virtual Meeting, Virtual Handshake and Virtual Eye Contact technologies perfected. Enhancing current videoconferencing technologies, these new technologies will make the experience much more life-like, perhaps improving rapport among negotiators.

The February 23, 1998 issue of Business Week in its lead article stated that speech technology would be the next big revolution in computing. Today powerful programs can recognize speech with over 95% accuracy. In the short/medium term, enhanced speech technologies will make their appearance. We are likely to see real-time translation of multiple spoken languages. In addition, the computer will become more intelligent in information gathering and analysis tailored to individual preferences and requirements.

In the medium term, computers will become more advanced in their voice recognition in the sense that they will be able to follow and analyze natural language dialogues among a group of individuals. Hence, in real-time, computers will be able to suggest Pareto improvements to negotiated settlements and to any human task or interaction based on the implied and expressed preferences. In the same line of thinking, the computer could monitor our behavior and suggest corrections based on individuals' or societies' norms.

In the long term, the above idea could be carried even further. Each individual could possess an Intimate/Wireless Assistant performing a variety of functions supporting/enhancing the quality of life. Such functions might include security, protection, entertainment, advice, guidance, bio-function feedback and monitoring among others. If empowered, the device could also be capable of restricting outside communications.

In the longer/distant future, these devices could be implanted within the brain. These devices would be able to recognize and interpret brainwaves, allowing constant monitoring and even telepathic communication. Perhaps in the more distant future, these implants could, if desired, take on more "god-like" features such as understanding the future. Some of these ideas are discussed in today's Science Fiction literature, one example being Douglas Adams' "Hitchhiker's Guide to the Galaxy".

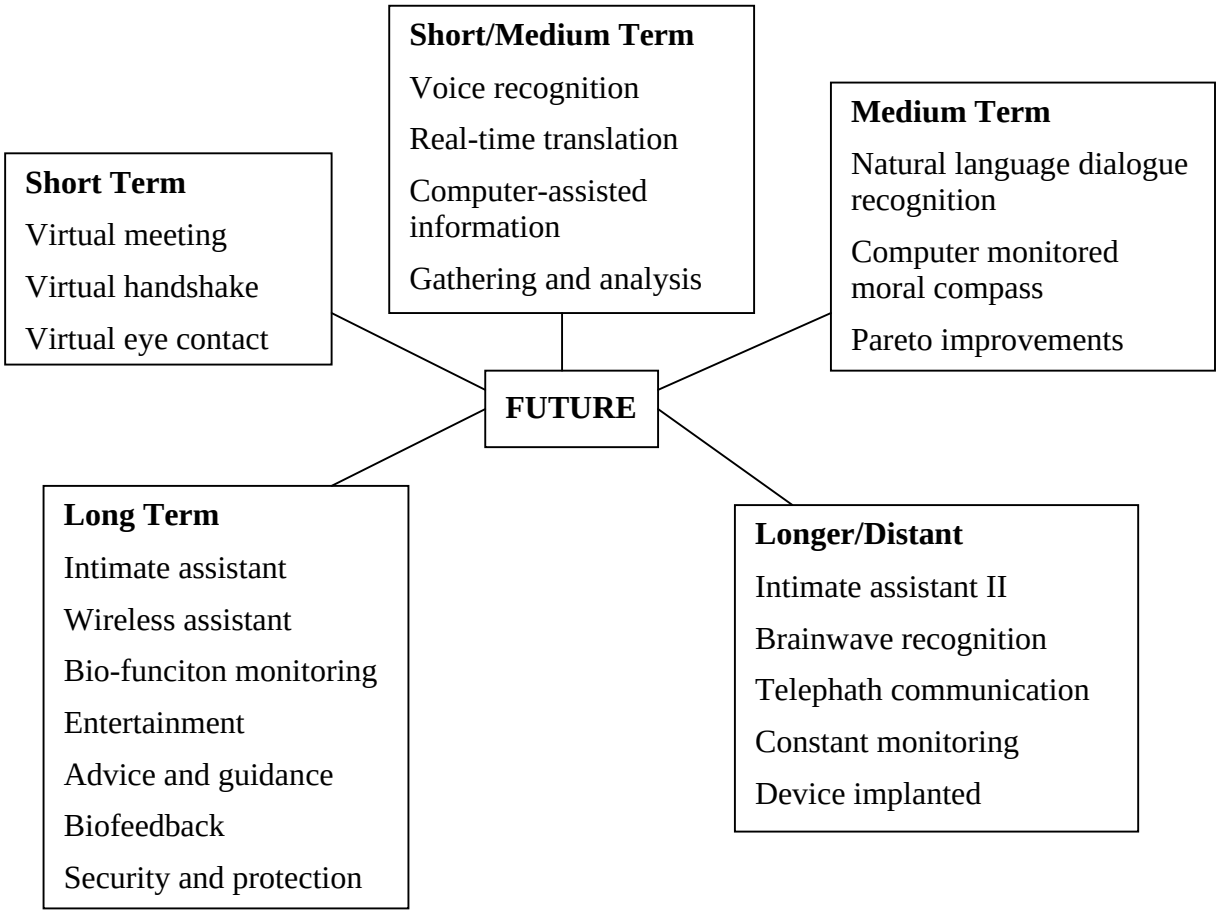


Figure 4: Projected future of computer aided life.

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Appendix: Survey on Information Technology in Communication and Negotiation

MBA Student Name _____

1. To what extent do you use email to contact your colleagues in your company locally?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

2. To what extent do you use email to contact your colleagues in your company internationally?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

3. To what extent do you use email to contact your business associates outside your company?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

4. Do you do this yourself, or does someone else assist you?

☐ Self ☐ Assisted

5. Regarding Home-pages, check all that apply:

☐ My Company has a homepage ☐ I have a homepage ☐ Neither

6. Does your company use its homepage as a means of marketing your product/service? Check all that apply.

☐ Selling directly ☐ Advertising ☐ Information to clients ☐ None

7. How often do you use “chat” technology?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

8. How often do you download programs or other objects from the Internet?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

9. How often do you use web-based meeting technology such as “net-meeting”?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

10. How often do you use the Internet phone?

☐ Hourly ☐ Daily ☐ Weekly ☐ Monthly ☐ Seldom ☐ Not at all

11. Is your computer equipped with a video camera?

☐ Yes ☐ No

12. Do you feel that the Internet has improved your efficiency in communication?

☐ Significantly ☐ To some extent ☐ Very little ☐ Not at all ☐ No, negative impact

13. List some of the reasons that are limiting your use of the Internet, in other words what is holding you back from going to the next higher level?

14. Do you conduct business negotiations over the Internet? If yes, for what purposes and with which medium, email or?

15. Assuming that you conduct business negotiations over the net, imagine that you have identified a possible settlement with your partner, would you be willing to try support tools that would seek to identify win-win settlements, that is where you would both gain?

☐ Yes, definitely ☐ Yes maybe ☐ I don't know ☐ Maybe not ☐ Definitely not

16. Would you be willing to try such tools in your company if we provided them to you?

☐ Yes, definitely ☐ Yes maybe ☐ I don't know ☐ Maybe not ☐ Definitely not

17. Would you be willing to answer more questions regarding this survey if we contacted you directly?

☐ Yes, definitely ☐ Yes maybe ☐ I don't know ☐ Maybe not ☐ Definitely not

18. What, in general, is the typical use of the above technologies companywide

Email:	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Chat:	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Internet phone:	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Downloading:	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Buying/selling	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Negotiating over the web:	☐ Hourly	☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all
Videoconferencing (non-Internet):		☐ Daily	☐ Weekly	☐ Monthly	☐ Seldom	☐ Not at all

19. Contact information:

Name and age of person interviewed:_____

Title and Degree: _____

Name of company:_____

Email address: _____

Phone:_____

Size of Company, Total number of Employees:

☐ <20 20–100 ☐ 100–500 ☐ 500–1000 ☐ 1000–10000 ☐ >10000

Comments: