DeleGate: Towards a Conference Diplomat's Multidimensional Workstation

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Abstract

Diplomats and other experts are sent as delegations to inter-governmental conferences to implement their governments' policies. Individual delegates in a multi-lateral diplomatic conference environment have needs for simultaneous any-time/any-place types of information and communication that have not been met by either traditional GSS studies in a given time/place environment or existing groupware.

Technological developments like groupware standardization and emerging PCMCIA connectivity are making possible new visions of potential improvements to support of inter-organizational group processes. In terms of a diplomatic conference this may mean having the host of a conference provide a network platform (server with collaborative software) according to an internationally accepted standard with participating diplomats having access through their own workstations and interfaces.

This paper demonstrates the need for more comprehensive, user-centered, multi-methodological IS research and groupware development to assist in navigating the seas of the collaboration archipelago.

1. Introduction

The success of any diplomatic act depends directly on the establishment of effective communication. In bilateral diplomacy each party communicates with only one other, so only the communicating diplomats make a final decision on use of any kind of automated support and determine "what can be automated and how can it be done effectively" (Nunamaker 1992).

A delegate is a representative of a government appointed to implement the government's policy regarding the issues and the mandate of a diplomatic conference. The delegate accomplishes this task by communicating through statements, proposals, promises, threats and other formal and informal means to generate a concluding document.

1.1. The multidimensional environment of the CSCE

The Conference on Security and Cooperation in Europe (CSCE) is the formal title for an international diplomatic process whose original primary purpose was to bridge the divided European continent. The "CSCE Helsinki Document 1992: The Challenge of Change" (CSCE 1992) clarifies the CSCE's modern role as "a forum for dialogue, negotiation and co-operation, providing direction and giving impulse to the shaping of the new Europe." On the CSCE's accomplishments, Henry Kissenger (1994) said the CSCE "...moderated Soviet conduct in Europe and, afterward it accelerated the collapse of the Soviet Empire..."

In conference diplomacy such as that conducted in the framework of the CSCE, every delegation communicates with all the other delegations of the participating states and the secretariat. It is not always sufficiently realized that, although speeches and statements are an important element in conference diplomacy communication, they are by no means the only element. Facial expressions and the maintaining of silence when challenged are also forms of communication. Informal conversations take place in lobbies, in embassies serving as delegation offices, at luncheons, dinners and cocktail receptions, in informal group meetings, and through delegation press releases. All these may be as important channels of communication as the conference statement announced in committee or plenary session (Kaufmann 1988)(see appendix A. for summaries of the types of delegate meetings and the artifacts used).

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1.2 Follow-up Meetings

The "Final Act of the Conference on Security and Co-operation in Europe" (CSCE 1975), often referred to as the Helsinki Final Act (HFA), established "follow-up" meetings that perform the real work of the CSCE. The HFA defined the purpose of the follow-up meetings as the forum for implementing the goals of the CSCE but, it only alluded to the process of those meetings. In the early years, the CSCE scheduled meetings as needed, usually at the end of the previous meeting.

"The Charter of Paris for a New Europe" (CSCE 1990) formalized the operations of the CSCE including the role and scheduling of "follow-up" meetings. These meetings, subsequently renamed review meetings, are to occur once every two years and last for not more than three months unless otherwise agreed upon by the attendees. The purpose of the meetings is to develop a consensus final document related to various issues that have surfaced over the last two years. The final document is developed out of negotiations over various proposals that are developed over the course of the conference. The Committee of Senior Officials (CSO) is responsible for developing the initial agenda for follow-up conferences.

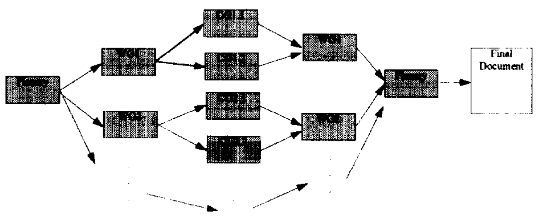

Figure 1.: Follow-up Meeting Formal Process

To understand the process of review meetings, it is useful to first understand the formal structure of the meetings, although the informal aspects are just as important. Follow-up meetings begin with members of all delegations meeting in plenary, listening to states' opening speeches. After this opening, the meeting is distributed into working groups (WG) which are listed on the agenda and cover each of the major themes of the conference. The WGs are further broken down into contact groups (CG) which are made up of a number of formal and informal conversations. To conclude the meeting, proposals from all contact groups are rolled up into a conference final document for concluding negotiations. The final document must be accepted by either consensus or consensus-minus-one when necessary. Figure 1 summarizes this process.

This meeting hierarchy is the official meeting structure, but significant negotiation and proposal generation will take place outside this structure. In practice, none of the above procedures are as orderly and distinct as described. The agenda itself may go through months of negotiating before becoming an acceptable starting point for the review meeting and will go through changes throughout the conference. Also, individual delegates will not work only in their selected contact group, but will work with their delegation to communicate in as many groups as needed, both official and unofficial. Proposal acceptance in one working group may be dependent on acceptance of other proposals in other working groups by other states. Balancing the various processes in working groups is an important phase of the conference's endgame. Figure 2 may be a better picture of the process.

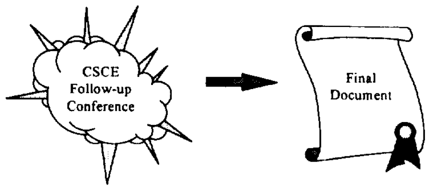

Figure 2.: Follow-up Meeting Informal Process

Within the contact groups and at other times over the course of the conference, the delegations surface formal and informal proposals. Proposal launching often begins informally and orally, sometimes well ahead of the conference in preceding consultations. When the parties involved feel the informal proposals have potential, they draft the proposals in writing. The written proposals are modified through several iterations as the delegates discuss them within their delegation, with other delegations, and with their capital or embassy. A delegate may be involved in many of these proposals and the proposals may be interrelated or competing.

Currently, the meetings contain inefficiencies that can stand in the way of diplomacy. "We were making proposals and it was clear they did not know how to react with them without getting guidance. It was not so much they did not want to react to them, but they did not have any linkage back home" (Observations 1994).

CSCE conference site facilities usually support two simultaneous official (with immediate interpretation into all six official languages) and a number of unofficial meetings. In the Helsinki Prototype System project the focus was on the first same-place/same-time mode to support delegates' unofficial drafting meetings (Lyytinen et al. 1993, Maaranen et al. 1993). In the DeleGate project, the scope also included the three other modes:

- Connections to other meetings and the on-site aide before, during and after same-place/different- time meetings (second mode),
- Different place coordination needed for a delegate to report to and get instructions from the home capital either directly (third mode), or
- Through embassies (fourth mode; same-time/different- place).

Figure 3 shows the delegate meetings overlaid on the groupware time/place matrix. The upper half of Figure 3 can be described as an interstate level and the lower half as an intrastate level, where information, traditionally often encrypted, circulates within one country's foreign policy apparatus.

complicated by linguistic difficulties, intellectual short-circuits, conceptual roadblocks, etc. (Kaufmann 1988). Certainly no additional technical stumbling blocks (e.g., premature installations of new technology) should be added.

1.3 Multi-cultural environment

Geographically, the cultural backgrounds of the CSCE delegates may vary from Hawaii to Vladivostok and from the Mediterranean to Greenland. In the CSCE, the working language in informal meetings and working groups is English, but in official meetings Russian, Spanish, Italian, French and German are interpreted simultaneously. All official documentation must be available in all six languages. Most diplomats are skilled

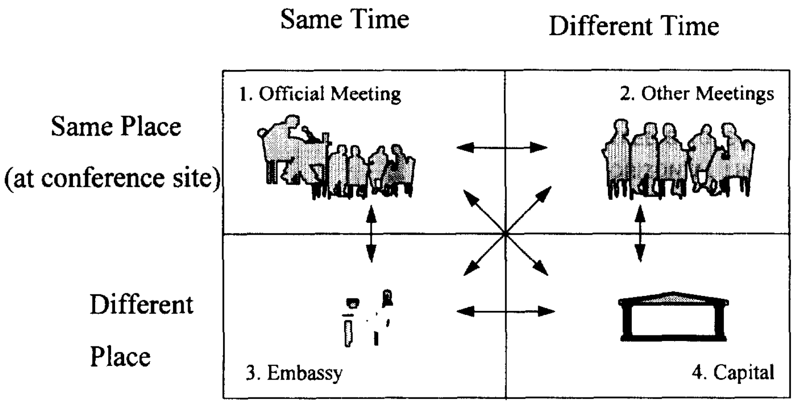

Figure 3.: Delegate meetings and groupware matrix

Supporting delegates' work in these modes is the fulfillment of the GSS any-time/any-place future scenario in which distributed teams use the advanced portable, wireless equipment that is required for real-time communication (Jessup and Valacich 1993).

Technological developments like further standardization of groupware systems and emerging PCMCIA connectivity make possible new visions of division of the labor involved in supporting inter-organizational group processes. For a diplomatic conference this might mean that the host of the conference would provide a network platform (server with collaborative software) according to an internationally accepted standard (for example, ISO-9000 or OSI). The participating diplomats would have access either through their own workstations and interfaces or computer hardware provided by the host equally to all delegates. Ideally the communication and groupware software would be on a "plug and play" PCMCIA card.

When these technical developments gain robustness they can support diplomatic communications, which may be

in more than one of these languages. Computer skills, although not required of diplomats, are commonplace among support staffs.

Newcomer diplomats tend to be more adept in the use of computers than their older colleagues, who traditionally have had professional backgrounds as lawyers, economists, political scientists, historians or parliamentarians (Kaufmann 1988). Requirements change over time, and by the next century the information age will have had an increasing impact on diplomatic careers.

Despite the increasing use of technology in diplomatic circles, courier pouches continue to travel from capitals to embassies and back to conduct business that cannot and will not be automated.

1.4 The multi-dimensional workstation

The DeleGate project developed a concept for a multidimensional delegate workstation, extending and updating the work done in the Helsinki Prototype System project (Maaranen et al 1992) as well as integrating

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changes in both information technology and the diplomatic Conference on Security and Cooperation in Europe (CSCE) process.

The portable workstation concept supports the delegate in both the same-time/same-place work of a diplomatic conference and distributed communications to a capital and/or embassy. In the following sections we describe one use of the any- time/any-place scenario (Jessup and Valacich 1993) in the context of the diplomatic arena. In the second section we describe the methodology used to define specific requirements for a conference diplomat's workstation that are presented in the third section. The fourth section is an evaluation of the availability of technologies to support those requirements. The fifth section furnishes conclusions related to the gap between what the technology can do to fulfill the requirements and what needs to be done.

2. Requirements Methodology

The environment of software development for the fuzzy diplomatic community (Knuuttila 1994) requires an array of tactics to elicit requirements. Identifying potential users is difficult because many states participating in the CSCE conference do not appoint delegates until a few weeks or days before the conference.

Sometimes these delegates, however experienced, have little or no experience with this particular type of conference, which is relatively new and is still evolving. Changes and reorganizations are the rule rather than the exception as a result of "changes in group membership over time" (Ziguris 1993).

The DeleGate research project was initiated to build on the results of the Helsinki prototype system and further develop the requirements for a diplomat's workstation. To understand participants' observations of conferences processes, the project relied on interviews with delegates (Lyytinen et al. 1992, Maaranen et al. 1994) before the Helsinki Follow-up Meeting (Interviews 1991), after it (Interviews 1992) and before and after the Prague Economic Forum Meeting in March 1994 (Observations 1994).

User feedback was obtained by using a quasi-participatory observation method. Subjects were conference delegates who had an understanding of our project that enabled them to observe both the processes in the conference and the other delegates' reactions to the technology. We later interviewed each delegate to capture a rich description of the diplomatic process, possible uses of the technology, and delegates' attitudes toward the technology. Like the previous work done by the Helsinki Prototype Project, the research approach was longitudinal and "thick" in the ethnographic sense in order to gain a deeper knowledge and a richer picture of the CSCE process (Lyytinen et al. 1994).

3. Requirements

Lyytinen et al (1994) demonstrated the differences between beliefs about "orthodox" electronically supported business group meetings and "non-orthodox" multi-lateral diplomatic group meetings:

> ...on the level of personal aspects designers should try out chauffeur-driven configurations, target only for extremely simple tasks (text writing and display), allow for optional use, and provide mechanisms to enhance user transparency... On the group level the key issue is to provide for tool and environmental flexibility to cater for variations in size, protocols, composition and role models. On task level the focus must be in supporting inter-meeting linkages and in designing simpler ways to use environment.

In the DeleGate project the requirements were derived from the changed and changing CSCE process. They are summarized in Table 1. The following subsections will give only examples relevant to a diplomat at a CSCE Conference, without attempting to describe the requirement per se in any detail.

In distributed meeting modes, a delegate is a member at least three situations. The first of these occurs when an individual wishes to communicate from a meeting with a fellow delegate who is in another meeting at the same conference (See Figure 3, modes 1 and 2). For example, he may be in the human rights committee and wish to communicate with a colleague in the economic cooperation working group. The second situation occurs when a delegate participating in a working group or committee meeting wants to communicate with his/her ambassador at the local embassy (see Figure 3, modes 1 and 4). A delegate needing to get direction on how to react to a proposal or whether to ask instructions from the capital directly represents the third situation (see Figure 3, modes 1 and 3). Other possible situations include contacting the secretariat, news media, external data banks, or a travel agent.

In a multi-lateral diplomatic environment, the major purpose of groupware support is to assist plenaries, working groups (or committees), by reducing the time devoted to copying and note-taking duties while preparing documents and other deliverables.

Neutrality: Support for the diplomatic process (facilitation, financing, training and maintenance) must be provided either by the host government or the CSCE Secretariat in as neutral a manner as possible similar to the way telephone, interpretation, loudspeaker or copying services are provided. The groupware or its implementation should not give any individual or group advantage or disadvantage in relation to others.

to translate official communications into the six official conference languages.

Because eye contact and body language are also very important in the diplomatic process, a "holistic" groupware solution should, if possible, include this kind

Table 1.: Summary of requirements for groupware to support a delegate

Requirement	Discussion
1. Neutrality	Groupware should not give any individual or group an advantage /disadvantage.
2. Consensus	Use of groupware at a given meeting must be by consensus.
3. Diplomatic Protocol	Groupware should support non-verbal and multi-lingual communications.
4. Technical Expertise	Groupware should be easy to use by users who have varying abilities. Groupware should support the entire range, including pencil and paper.
5. Flexibility	The technology must accommodate a constant change in the size and participation levels of the meeting in a seamless manner.
6. Safety and Ergonomics	Groupware cannot pose any kind of hazard or barrier. It must be comfortable to use. Special attention must be paid to interior design.
7. Software Capabilities	A wide range of application software must be available for the diplomat's use (spreadsheets, word processing, communications, groupware, etc.)
8. Response Time	Must be rapid enough to encourage the use of groupware.
9. Accuracy and Reliability	The sensitivity of the issues requires absolute software accuracy and hardware reliability.
10. Security	The sensitivity of the issues requires protection from unauthorized personnel .
11. Traceability	Delegates need to know what delegation is responsible for initial proposals and modifications.
12. Real-time Access to News	Delegates need real-time, discrete, access to news (TV, news wires, radio, bulletins, etc.).
13. Location Independence	Delegates need to be able to communicate with other delegates, with their local embassy, and with their home capital without time or place limitations.
14. Verbal Communication	Verbal communication and non-verbal communication need to be supported (audio and visual)
15. Autonomy	The delegate must be able to control the content and timing of the communication
16. Portability	Groupware must have the capability to be used at any time and in any place. Diplomatic conference support requires the ability to roam effortlessly.
17. Peripheral Support	All kinds of peripherals (printers, data, voice and fax modems and storage devices etc.) easily accessible
18. Expandability	The groupware solution should be able to accommodate new technology.
19. Modularity	Modularity will allow a delegate to choose a tool or technique from a menu of tools to support a particular current need or design own interface.

Consensus on the use of the system: Delegates must accept the use of the system by consensus in the group concerned. Consensus on group usage on a more general level, as in official plenaries, will be reached only if all participating states feel that they can benefit from the use of the system or that it will not harm their maneuvering. Diplomats may participate in a given meeting with or without using groupware.

Consistent with existing diplomatic protocol: Diplomatic protocol does not include behavioral rules regarding the use of computers, which will be established little by little.

Multi-lateral diplomatic processes have a very strong oral culture, which will continue to be the primary method of communication. Groupware must support it as well as other forms of communication and must be able

of visual exchange of information.

Levels of technical expertise: Computer backgrounds of diplomats and their supporting staffs range from little or none to extremely sophisticated and extensive experience(Lyytinen et al. 1993), especially in encryption (Kranakis 1986). Groupware must accommodate all levels of expertise and provide no advantage or disadvantage to any individual user.

The more familiar a diplomat is with electronic technology (example, phone and fax technologies), the more likely that individual is to use it. Diplomats will expect technology to be embedded in the groupware solution. This feature is consistent with the belief that any groupware tool must have a training period of no more than 30 seconds if it is to achieve wide-spread acceptance and use (Nunamaker et al. 1994).

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Flexibility: Participation in the multi-lateral diplomatic process varies over time and needs extremely flexible support. Delegates will drift in and out of any given meeting, creating diverse groups and sub-groups of variable size, personality and structure within the same meeting.

Safety and ergonomics: The Helsinki Prototype emphasized this aspect by hiding all cables and wires to make an esthetically pleasing and safe meeting room. Supporting equipment must not form physical barriers to normal visual and voice contacts.

Software Capabilities: A variety of software packages (communication, groupware, spreadsheet, word-processing) must be supported at the conference site. For example, different groupware software packages must be supported so each diplomat has an option "to stick to his dear, old, easy-to-use, but weird word-processor" (Observations 1994).

Continuous drafting and reporting cycles imply that advanced forms of text support must be available to diplomats. In some situations verbal or voice communication must be supported.

Response time: Response time must match that of previous technologies and rapid document generation is important. This is especially true once final political agreement has been reached, in order to produce the concluding document quickly, before new disputes appear.

Accuracy and reliability: The meaning of a sentence or paragraph can be dramatically changed by incomplete input or word processing (for example, the loss of a word or sentence, or the changing of a word or position of a sentence). Inaccurate communication will not be tolerated in this environment.

Security: Security, which is a fundamental requirement of diplomatic communication, encompasses the ensuring of privacy (screen filters to prevent "prying eyes"), prevention of information leaks to the press, and protection of national security.

Traceability: In diplomatic negotiations, it is important to know who has contributed ideas or compromise proposals and who has opposed them by blocking consensus. Traditional diplomatic can not make use of anonymity options provided by groupware solutions (Lyytinen et al. 1994).

Real-time access to the news and data banks: Major diplomatic conference sites have lobbies equipped with television sets that provide access to broadcasts from CNN, news agency wire services, and local news media. Local workstation access to these types of services could be employed.

Location Independence: In the cases cited, a delegate communicates with another individual who is at a different location. In other cases, a delegate may want to communicate at a different time, perhaps to someone who is in a different time zone. The message may also be discontinuous like e-mail rather than continuous like a telephone conversation. Today, a delegate must take a break from the meeting to send a communication by courier, to deliver a message in person, or to make a phone call. We envision an environment where this communication could occur while the diplomat remains in the meeting.

Verbal Communication: The diplomatic conference is foremost an oral culture. Spoken communication dominates conference work and will continue to do so for the foreseeable future and must be supported and integrated with other newer communications techniques.

Autonomy: Having each delegate be monitored on-line by his capital ("big brother") would totally destroy any delegate's flexibility or maneuverability. In the words of one of the interviewees (Interviews 1992) "With that kind of on-line system, you could kill every conference." The working diplomat must also be able to control the arrival time of incoming communications. This will increase flexibility and maneuverability as well as allow for "face-saving escape routes."

Portability: Drafting can take place anywhere, and often occurs after hours in a small group away from the conference site (Lyytinen et al. 1993). The workstation must be portable if it is to support all possible meetings (see Appendix A), which vary "from nightly telephone call from one delegate to another to televised delivering a plenary speech" (Interviews 1991).

Peripheral and secretarial support: Documents are an essential part of a diplomatic conference. Peripheral (or secretarial) support required to generate, translate, distribute, store and retrieve both new and old documents topped the requirements list of those we interviewed. A database solution is represented in the DeleGate project reports (1994). In addition to a printer that can produce copies in color, data, voice and fax modems, copiers etc. should be at the delegates' disposal in addition to the meeting-room peripherals.

Modularity: This type of groupware would permit both the menu approach, where a given diplomat could select from a range of options the particular method of participation and communication best suited to meet his immediate need, as well as the "Lego" or building-block approach where modules or options can be added to expand the repertoire of options. Modularity would allow diplomats to discard or ignore options of no interest or use to them, while taking advantage of the ones that were.

4. Technology Review

"To date there is no single environment that combines individual and group support, remote and face-to-face collaboration, text, graphics, video, and voice links, and computer applications" (Nunamaker et al. 1994). Single packages of software do not cover all of the modes of the groupware matrix and communication between different modes is limited. Robust, compatible, high bandwidth and wireless data communications that are unobtrusive to the user do not exist, but close approximations are very promising. The requirements that directly impact technology considerations and the current and future availability of those technologies are summarized in Table 2.

4.1 Software

Today an archipelago (McKenney and McFarlan 1982) of dissimilar groupware exists and needs to be employed to meet the diplomatic delegates' requirements in all modes of the groupware matrix. These islands need to be bridged seamlessly. Well- tested groupware supporting one or two modes of the this matrix exists. For example, GroupSystems V has been implemented in over 200 companies and 50 government agencies. However, no package comprehensively covers all the modes, allowing a delegate to transfer information from same-time groupware to distributed groupware.

The DeleGate project combined Ventana's GroupSystems for Windows, a rich electronic meeting system groupware, with ICL's TeamWare distributed (in time and place) groupware, also for Windows, to cover the breadth of coordination requirements that have been described.

The combined features of these two products met most of the coordination requirements of the project, but the bridges are far from adequate. Although GroupSystems is easy to use when used alone, dissimilar user interfaces and weak bridges make the overall system difficult to navigate without considerable expertise. For example, copying text data from GroupSystems for Windows and TeamWare requires considerable knowledge of both products as well as of Windows itself.

Dissimilar user interfaces make overall use of groupware difficult for a delegate. To the user, the interface is the system (Moran 1981, Gray et al. 1993). Different user interfaces make it exceptionally clear to users that they are using different systems when using multiple packages. The user needs to view the delegate workstation as one integrated system within which he or she can effortlessly move from one module to another.

Existing groupware does not allow the delegate autonomy to pick and choose participation in meetings. Neither does it currently allow the user to enter and exit multiple electronic meetings at will and independently of a facilitator.

Groupware does not yet support a seamless mix of manual and computer methods. Ideas of delegates who are using pen and paper need to be included in the system. Persons using the system need to be able to capture information from the screen. Facilities for these interfaces between the computer-supported and non-computer-supported meetings exist, but they are not easily available to each individual delegate.

4.2 Hardware

Laptop technology is well developed and, for a price, is nearly comparable in performance with desktop systems. The DeleGate workstation itself can be implemented on a laptop, although wireless data communications, such as wireless LANs and cellular phones are available, but are not ready for the diplomatic environment. Further, the emerging laptop standard interface to wireless devices, PCMCIA, is not yet standard (Jaroslovsky 1994). While these technologies are not sufficiently advanced for use in the diplomatic environment, they are close and show promise.

The PCMCIA bus is, in fact, today's standard for laptop data communications and can be used if care is taken to research compatibility issues. However, a delegate cannot be assured that any combination of laptop and interface can be used. Technicians will still have to select and test equipment prior to a conference.

Wireless LANs currently operate on a variety of frequencies and use various transmission techniques, but they still suffer from slow speeds and large component sizes. However, they will be quite close to meeting the needs of the delegate as new generations of these products are released.

Worldwide, digital cellular networks which will improve reliability and availability of service for the delegate, are being installed but they do not offer higher than voice-grade data rates. Cellular data communication works, but truly easy-to-use, reliable, and flexible networks have yet to emerge. They are technologically feasible and will come into use as politics and standards allow.

Table 2.: Available and Soon to be Available Delegate Support Technology

Technological Requirements from the DeleGate project	Availability in 1994	Probable by 2000
Flexibility		
1. Autonomy	Technology available, but needs a high technical skill level.	Easy to use.
2. Voice	Available.	Available integrated with computerized documents.
3. Portability	Smallest wireless LAN modules are portable, but have a slow data rate. Less portable systems have faster data rates.	Smallest modules will shrink to PCMCIA size or less while handling adequate data rates.
4. Peripherals	Available	More advanced
5. Expandability	Available with moderate limitations on group size.	Few limitations on group size.
6. Modularity	Limited compatibility	Wide compatibility
Robustness		
7. Support a Variety of Software	Week bridges between groupware islands. Slow wireless communications	Integrated groupware and linked groupware. Groupware seamlessly coupled with single user software.
8. Speed	Wireless LAN rates are acceptable in the less portable systems. Cellular rates are equal to voice lines.	Fast wireless LAN and WAN Cellular data rates much faster than voice with the ability to purchase desired data rate.
9. Accuracy	Available	Available
10. Reliability	Variable	More Stable
11. Vendor Appearance	Critical, vendors getting interested in more marginal markets	More standards, less critical, more competition in out-of mainstream markets
Security		
12. Physical Security	Available	Available, new kinds of risks may appear
13. Data Security	Safe from accidental and novice hackers, but professional code breakers keep pace with technology.	Safe from accidental and novice hackers, but professional code breakers try to keep pace with technology. Encrypted electronic signatures commonplace on international level

5. Conclusion

The technological developments in the groupware arena are enabling their introduction to the delegates to be used in the support of the diplomatic process in order to let the delegates allocate their time and other resources better. The starting point could be - as described by the Helsinki Prototype System and DeleGate concepts- the support for most time-consuming parts of communication duties like reporting and drafting. Groupware, both hardware and software is improving on the dimensions of the delegate requirements and will support most of these requirements by the year 2000.

The development of embedded collaboration software to support delegates' workflow in a holistic way is a challenge to be met in close cooperation by the diplomatic and MIS communities.

The diffusion of the new technologies into new frontiers can take several paths (Rogers and Shoemaker), may be "lumpy" (Tyre and Orlikowski 1993), and may meet resistance (Saarinen 1987).

> I think there were a number of delegations that badly wanted laptops. Every once in a while you can look at someone and know that they don't want a laptop. There are quite clearly people who never want to see a computer... (Observations 1994)

The present CSCE environment, with 53 participating states, their foreign ministries, their administrative cultures in various phases of development, and their various architectures regarding the proliferation of computers, unanimity about use of groupware is most unlikely. Given the level of standardization, embedding of the systems and the lack of robustness (e.g., in the PCMCIA platform) the technological community is not yet ready to show a clear path to the future. We believe, however, that the coming few years see major reasonably priced developments that will be applicable to DeleGate and fulfill the precondition given by Kaufmann (1988, p.142):

> A revolt of the newcomers against the old hands can therefore only be successful if the newcomers know exactly what they are doing and are

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numerous enough to be able to hint at the use they can make of their majority vote if they so wish.

The task in the CSCE framework is even more challenging, because consensus on major changes in the working habits and protocols is required. Technology will remain no substitute for political leadership and a solid understanding of diplomatic group dynamics. The absence of these principal success factors from diplomatic conferences will probably become even more visible. When they are present, DeleGate will be improved as technology advances and be able to provide better support for staff communication within delegations, with ministries back home and with other delegations-plus emerging participation of non-governmental organizations. In any case, Groupware will be able to provide diplomats with improved access to information (e.g., to face the pressures posed by the mass media).

The main challenge of future research still remains facilitation of delegates' thinking processes and of negotiation cycles in fragile and changing diplomatic conference environments. The Helsinki Prototype System and the DeleGate concept described in this article use modern robust technologies to partially reduce the time that must be spent on procedures such as drafting and reporting. By the year 2000, we believe major technology improvements will have enabled us to meet the information systems requirements of the diplomatic community in a more comprehensive way. The conference diplomat's multidimensional workstation concept is only one piece of the puzzle. More bridges between the MIS and diplomatic communities (i.e., between universities and foreign ministries and international organizations) must be built. Each of these acronym-slinging communities needs to learn from the other, to evaluate the lessons being learned in this area, and to experience a learning curve that sometimes may seem steep.

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Appendix A.

Listing of Delegates' artifacts now used in different kinds of meetings for delegate to delegate communications

TYPES OF DELEGATES' MEETINGS	COMMUNICATION SUPPORT ARTIFACTS USED
Delegate-to-delegate Telephone call	cellular or normal telephone, phone book, paper, pen, PDA, PC
Telephone meeting	cellular or normal telephones, phone book, paper, pen, PDA, PC
Lobby conversation	name-tag, pen, paper, calendar, cellular phone, PDA, laptop PC
Reception	visit cards, pen, calendar, glasses, booze etc.
Working lunch/dinner	pen, paper, calendar, PDA, cellular phone, fork, knife etc
Diplomatic lunch/dinner with or without spouses	invitation card, name slip on the table, placing chart, spouse, fork, knife etc.
Ad hoc group meeting	pen, paper, calendar, phone, PDA, PC, fax, previous documentation
Unofficial drafting meeting	pen, paper, calendar, phone, telex, PDA, PC, FAX, previous documentation, dictionary
Translation/language check meeting (with secretariat)	pen, paper, calendar, phone, telex, PDA, networked laptop PCs, FAX, previous documentation, dictionary
Unofficial meeting of a working group	country sign (face down),pen, paper, calendar, (microphone),phone, telex, PDA, networked PCs, FAX, previous documentation dictionary
Official meeting of a working group	country sign (face up),pen, paper, calendar, ear, phones, microphone, PDA, laptop PC, previous documentation, dictionary
Plenary Session open/non-open to the media	country sign (face up),pen, paper, calendar, ear, phones, microphone, PDA, laptop PC, previous documentation, dictionary
Heads of state plenum session open/non-open to the media	country sign, security personnel, pen, paper, calendar, ear phones, microphone

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