International computer conferencing by NGOs and IGOs

A surprising number of experiments in the use of computer conferencing have already been made by international organizations. Some of those of which we have been informed are mentioned below :

International Society for Technology Assessment : This organization used the CONFER computer conferencing facilities during the course of its second international congress in Ann Arbor (Michigan, USA) to facilitate interaction between participants physically present at the meeting site. (A full report is given on pages *414-417* of this issue),

— United Nations Educational, Scientific and Cultural Organization : The 19th General Conference of Unesco was held in Nairobi in October-November 1976 over a period of five weeks. A satellite link to the Unesco Secretariat in Parts permitted officials, delegates, translators, journalists and others to interact with those physically present in Nairobi (A full report is given on pages *423-424* of this issue). It is expected that further experiments of this kind will be undertaken using the Franco-German Symphonie satellite (which apparently cannot be exploited commercially because of the terms of the contract under which it was launched in the United States).

— Hotline International : This is a program initiated by Glen Leet as President of the Community Development Foundation (New York), Its purpose is to broaden the impact of intergovernmental conferences by permitting more people to play a role in the decision-making process and to heighten understanding of what occurs at such international conferences. The system was first demonstrated in April 1974 during the meeting of the Governing Council using a portable computer terminal linked via telephone line to a computer in the United States into which many North American based groups were also linked. A similar approach was used during the course of the UN World Population Conference in August 1974 and again in Nairobi in April 1975 at another meeting of the Governing Council. In June 1975 at the UN Conference on Women the system was expanded to link groups in 10 US cities as well as in Vancouver and Mexico City. During a 17-day period over 100 North American NGOs were linked to discuss items on the conference agenda. The Hotline system was also used during the UN Habitat Conference in Vancouver in 1976.

— European Management Forum : This Geneva-based NGO used the PLANET system (currently marketed by INFO-MEDIA Corporation in California) to interact with economists in New York and California in order to obtain expert opinions on technology transfer to developing countries.

— International Union of Geological Sciences : The IUGS Committee on Storage, Automatic Processing and Retrieval of Geological Data was used from August to December 1975 by participants in 9 countries in order to plan two major face-to-face meetings in December at which time the PLANET system (cited in the previous example) continued to be used by participants to maintain contact with their respective national institutes. Main uses of the system then and thereafter were to coordinate organization of meetings and workshops, define and resolve certain technical problems connected with the data to be exchanged at the workshops, arrange further travel between collaborating institutes, and extend the discussion of important documents which could not be adequately explored during the time-limits of a face-to-face meeting,

— International Telegraph and Telephone Consultative Committee : In anticipation of full use of computer conferencing, the Chairman of one CCITT working group arranged for a simulation of the work of the committee on the FORUM system of the Institute of the Future (based in California). A debate between national delegations with position papers was conducted on integrated digital networks. There are probably a number of other cases of the use of computers to assist interaction between participants at international meetings or as a substitute for meeting. (There are many examples of the exchange of scientific data between national institutes under the auspices of some international body. This is particularly necessary in the case of meteorological data, seismic data, astronomical phenomena, and other international scientific programs.) Such systems are also used by some multi-national corporations to facilitate the action of task forces. Aside from actual use of such techniques, there have been a number of conferences of international bodies concerning the future use of such techniques :

— Organization for Economic Cooperation and Development : In 1975 in Paris a conference on computer tele-communication policy was held.

— International Council on Computer Communication : This body holds a periodic conference every two years (1972, 1974 and 1976); many technical papers on computer conferencing are presented.

— North Atlantic Treaty Organization : NATO is holding a telecommunications symposium in September 1977 (Some of the points to be discussed are noted on pages 123-456 of this issue).

— Society for General Systems Research : In February 1977 in Denver during its annual meeting, a workshop was held on « on-line intellectual communities ».

Other international bodies are currently planning to use such techniques. For example the International Political Science Association has a Research Committee on Peace and Conflict. Under the direction of the Chairman, J David Singer, computer conferencing has been « used on a trial basis within the University of Michigan community, and also in connection with peace researchers at the Universities of Pittsburgh and Rochester, with excellent results to date. It looks now as if we can not only extend the network of peace researchers and others through out North America within a few months, but also as if we can tie into a Western European network within a year or so. As to Eastern Europe, some informal discussions are already under way, and the problems do not seem insurmountable. For South America, Africa and Asia, however, the logistic and financial problems will be more serious. But our hope is to eventually establish a world-wide net that would dramatically enhance not only communications in general, but the kind of rapid and open exchange that could lead to major increase in scientific research on the problems of war, peace, and social conflict », (extract from a letter of July 1977).

Computer conferencing : costs and sources

The costs of computer conferencing are decreasing rapidly with the spread in the number of institutions equipped with suitable terminals (usually hired or purchased for other purposes) and with the increase in the number of commercial services offered via data networks. The following information is therefore offered only as a guide, based on experience in different settings in the USA.

It is important to note that in a specific case costs can often be absorbed into other budgets, for example when a number of research institutions already linked by data networks agree to the use of equipment and computer time at cost or at a subsidized rate. It is important to note that it is not necessary to consider the cost of purchasing or renting the central computer which maintains the links between the networks of terminals, since this can be done via a large computer common in many institutions or available to them on a service bureau basis. The main cost elements are the following :

1. Terminal equipment: It is possible to rent or lease terminals from manufacturers and from data networks (whether commercial or governmental). It is expected that by 1980 terminals will become an overhead item (like a typewriter, telephone, or desk calculator) at most research institutions.

    Purchase :
    1977 — $ 1500-4000
       (maintenance $ 450 per year)
    1980 — $ 300-600
    Rental :
    1977 —$ 75-150 per month
       (installation charge $ 100)
    The costs vary with the type and quality of equipment (ability to reproduce diagrams, provide paper copy, etc).

2. Communication with a data network contact point (a « network port ») : Commercial and other data networks significantly reduce the cost of data transfer between distant points (e.g. across a continent). However those outside a metropolitan area have to link into such networks at the closest point. This can usually be done via a single tele-

phone line. The cost of using the telephone for this purpose is therefore dependent upon the telephone rate charge for the distance involved. This may be either the price of a local call, an inter-city call, or an international call (if there is no network port in that country). The length and cost of the call depend on the amount of time the terminal is in use.

3. Use of data network : If a data network is required to link participants at distant locations, the costs are:
    1977 — $ 3.50 - 12.00 per hour
    (depending on the network used)
    Network rates are expected to decrease slowly with the development of more efficient technology for message or packet processing.
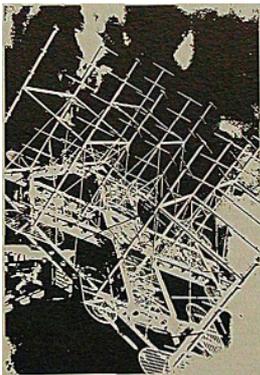
4. Computer utilisation : This is charged on the basis of the number of « resource units » used in a given session (i.e. what the computer actually does rather than time spent waiting for the participant to finish something to be processed).
    1977 — $ 0.12 per resource
    unit or approximately
    — $ 4.00 per hour (of effective use)
    It is expected that these costs will decrease by more than 50 % by 1980 with the introduction of mini- and micro-processors. It has been suggested that a total of $ 20 per participant is a generous estimate for a typical conference.

5. Use of computer data storage : A conference is a file which resides on a mass storage device. Charges

are made on the basis of the number of characters stored.
    1977 — $ 0.45 per month (for 1000 characters)
    This cost may be significantly reduced if the data is stored in « blocks ».

6. Use of computer conferencing software : A charge may be made to the organizer for the use of the program which supports the conference interaction.
    1977 — $ 5.00 per hour (in the case of the PLANET system).

7. Administrative overheads : Commercial networks also include flat rate handling charges and special software packages :
    1977 — $ 25.00 per month per participant (in the case of the PLANET system).

Total cost summary :

A recent overall estimate by the Computerized Conferencing and Communication Center of the New Jersey Institute of Technology suggests that operating a multi-conference computer system on a nation-wide data network costs :
$ 8.00 per hour per person for a system with 300 participants
$ 5.00 per hour per person for a system with 1000 participants
This is cheaper than the hourly cost of long distance telephoning (in the USA) and cheaper than the cost of maintaining communication through the mail between 20 people. And there is no comparison with the travel costs of bringing such people together at one place and accommodating them for a face-to-face meeting, even when the costs of their absence from their own organizations are excluded. Even in a large building complex, 10 people whose time was worth more than $ 10.00 per hour (per person) would save money by using a computerized conferencing system rather than calling a committee meeting.

Note : If a (multi-) conference was supported or subsidized by a network of academic or government institutions, it is highly probable that costs : 4, 5. 6, and 7 would be absent or subsidized. If the (multi-) conference was held at one particular location to facilitate interaction between participants in a conventional conference environment, it is probable that :
costs : 2 and 3 would be absent
cost : 1 would be absent if many terminals were already available, as is the case on many US university campuses.

For further details see : Murray Turoff. The costs and revenues of computerized conferencing. In : Proceedings of the 1976 1CCC, Washington, International Council on Computer Communication, 1976.

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