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G7 Pilot Projects

Progress reports

Paris, December 20th, 1996

1. Global Inventory Project

GLOBAL INVENTORY PROJECT PROJECT STATUS REPORT

(DECEMBER 17, 1996)

Overall Objectives:

The overall goal of the project is to produce an internet-based multimedia inventory of national and international projects, studies and other initiatives pertaining to the promotion and further development of the information society. Its objectives are:

- to act as an international point of reference that will assist in the promotion of the information society
- to establish a network for the free exchange of information about national and international initiatives relating to the information society (electronic forum)
- to promote and gain understanding of the impact of information society activities on the economy, industry and society
- to foster international alliance building and multinational projects and investments.

Participants:

The project, launched by the G7 Ministers in Brussels in 1995, is co-lead by the European Commission and Japan. It is hosted in Brussels by the European Commission's Information Society Project Office (ISPO), a joint initiative of DGIII and DGXIII.

The GIP is OPEN to and welcomes the participation of non-G7 countries and international organisations.

To date, the World Bank (InfoDev Programme) has become a participant in the GIP. Other countries such as Romania, Slovenia, South Africa and Korea have expressed an interest in the project. Their full participation will be actively sought during the first quarter of 1997.

Project Status

Since the GIP was launched at the G7 Information Society Conference held in Brussels in February 1995, the GIP Steering Committee, composed of G-7 National representatives, has met on a number of occasions to refine project plans and define the technical approach to be used for the project. Consensus on the technical approach was reached and it was agreed that the GIP would be a decentralised system with a centralised indexing and directory services thus allowing for a global search facility based on a "set of keywords". The GIP Host would also maintain an "offshore repository" of information for countries not yet having their own National Inventory until such an inventory could be created by the country. A common home page would be created, in the language of G7 countries. The results of the search would bring up a minimum data set in its original language plus English. A link would be made to the source of the information (National Inventory or GIP host).

To date, considerable efforts have been made to move GIP Project forward. Each national government has set up a national server and collection of data is being undertaken according to the Minimum Data Set

requirements previously defined. The results from each of the G7 National Servers can be summarised as follows:

CANADA: the server has changed considerably since the last Steering Committee meeting held in November 1995. It has now become part of the CINCH (national information strategy server). Over 100 initiatives specific to the GIP have been identified to date (both private and public sector) and summary descriptions of these projects are available in both English and French.

FRANCE: a prototype has been used to date which does not yet have an established link to the GIP Host. Government funding, however, has recently been received so that the server may be finalised. In France, a large number of IS projects, from both the private and public sector, will be soon available due to a new Call for Information Society projects. Project descriptions currently available are in French. Once fully operational, the French national server, will contain FAQ-service, different access/query possibilities and cover all sectors of activities.

GERMANY: the national server has been fully operational for about 1 year. The GIP section contains approximately 50 project summaries both in German and English. Summaries also contain e-mail references and ftp addresses of full project descriptions.

ITALY: a server is fully operational. Approximately 25 project entries are currently available for the GIP with summaries being provided in English and Italian. This figure will be increased to over 100 before the end of 1996. Entries, at present, are representative of projects being undertaken by local governments, large industry in areas such as telecommunications, aerospace, etc.

JAPAN: a new home page for the server was implemented in May 1996 with links from and to the MPT home page. Approximately 45 initiatives have been identified in Japan and are now available in the GIP server. Summary descriptions are available in both Japanese and English. From May 1996 to September 1996 over 30000 hits have been recorded for this server.

UK: the National Server now has approx. 800 project entries with an additional 18 new multimedia projects soon be provided by DTL. All entries are accessible through HTML links via the WWW using a combination of text and icons. The database is operated by a private company (Tagish).

USA: the GIP server was designed and implemented to meet the data set specifications defined by the GIP Steering Committee. 80 projects from the very large National Inventory have been converted to the G7 format as examples or "proofs of concept". In addition, links to related theme area sites have been made. This server has been made available to the public on the Internet since January 1996. Materials have been added and updated during the course of the year. For example, the SME Tesbed Projects have been entered using the MDS to allow these projects to be searched using the GIP search engine as soon as it becomes available.

The EUROPEAN COMMISSION (DGIII and DGXIII), is committed to the successful implementation of this project. To demonstrate this commitment, DGIII and DGXIII, in October 1995, launched an Open Call for Tender based upon the principles defined with the GIP Steering Committee, to develop, in particular, the GIP Host and its "offshore" server.

After a selection procedure, the EC awarded a service contract to EXOL (I) with MIT Media Lab (USA), Datar (F) and PSI (UK) in an subcontracting role. Given the requirements of the project, the EC has also established an internal EU Project Team composed of Commission officials from ISPO, Directorates General III and XIII to monitor and examine project progress, provide direction and feedback to the consortium throughout the different phases of the project and ensure fulfilment of contractual commitments.

The EXILE Consortium began its work on June 28, 1996, after a meeting with the EU Project Team.

Under this contract, the GIP Project development has been organised to evolve along three main phases (running in parallel) and which are comprehensive of all the 7 tasks identified in the Call for Tender. The three phases may be briefly described as follows:

Phase 1: Demonstration - the objective is to produce a prototype that will be refined as the results from the user requirements become available. This approach will enable to fine-tune the prototype throughout the contract period. In parallel to this development, the identification of the user requirements has been launched through the submission of direct mail questionnaires. This questionnaire has also been placed on the WWW for feedback by the internet community.

Phase 2: Development - this will be the most intensive phase of the project as it will require the full implementation of all functionalities including multilingual searching and browsers, multimedia extensions, intelligent agents, graphical user overview. A detailed description of the hardware and software requirements will be produced and the overall functionalities will be implemented. Detailed analysis of the user requirements and needs will become available. Concrete awareness and dissemination events, including a focused on-line internet information campaign to collect as much information as possible will also begin in 1997.

Phase 3: Refinement - the demonstration model of the GIP Host will become a mature tool, refined to meet the final results of the user needs analysis.

The GIP Host will be installed on the premises of the EC (ISPO) and be fully operational by September 1997.

GIP Activities in 1997

- A demonstration model of the GIP Host facility with basic functionalities, including multilingual searching capabilities across all participating National Servers (G7 languages at this time), browsers, home-page, links to G7 National Servers, electronic forum, etc. will become accessible to the public in mid-January 1997.
- The GIP Steering Committee have begun an analysis of the keywords used at National level for searching the contents of the National Inventories. In January 1997 work on the definition and consensus building process upon which to base the "list of keywords" for multilingual searching for the GIP will be finalised.
- Preliminary results of a first "user analysis" have been produced and presented to the GIP Steering Committee, at its last meeting in Brussels on October 21, 1996. A questionnaire, revised to include all the comments and suggestions made during the meeting, has been prepared and distributed using direct-mail sampling techniques not only within G7 countries but also in developing countries and countries in transition. The questionnaire has also been placed on an internet site so that any member of the "internet community" may provide feedback. (site address: <http://www.vol.it/GIP/Questionnaire>.) The final results and analysis of the User Requirements will become available by the end of February 1997.
- Concrete GIP actions to create awareness are being scheduled for the first half of 1997. These actions, as identified EXOL Consortium proposal to the EC, have the objective to: promote participation in the GIP of non-G7 countries (especially developing countries and countries in transition) and develop a promotional campaign to create awareness of the functionalities of the GIP and its relevance to the development of the IS both as a tool for the promotion of free exchange of information as well as foster international investments through its possible brokerage function.

Three types of actions will be undertaken to achieve these awareness objectives:

1. organisation of 1 "major" event in Poland. In addition 8 "minor" on site events would be held in Denmark, Czech Republic, Spain, Bulgaria, Egypt, Hungary, Israel, and Turkey. Besides, the demonstration of the GIP Project and its possible uses, topics to be discussed at each event would be tailored to address some of the I.S. issues of interest to the host country. The 8 on-site minor events would be targeting an audience composed primarily of government officials, academics/scientific community and local media representatives.

The overall aim of each event would be to have the host country announce its concrete participation in the GIP. The major event in Poland is scheduled to take place on May 30, 1997, close to the end of the contract issued by the EC to the EXOL Consortium, will be used to launch the full implementation of the GIP system and discuss with key actors, i.e. national GIP representatives, scientific leaders, etc. the impact and role of this project within the information society.

2. organise an activity of on-line data collection making extensive use of Internet search engines, crawlers, linking to existing internet networks such as W3NET, Telecities, etc.
 3. undertake a promotional strategy (that will accompany the on-site events with brochures, CD-ROM, articles in targeted magazines, etc) as well as make an extensive use of on-line internet advertising via appropriately placed "GIP banners" on prominent Web sites (such as Infoseek, Yahoo, etc). The discussions lists on information society issues (training and education, sustainable development, etc) will be activated together with the "Forum" function. It is expected that the "Forum" will be initiate the brokerage function potential of the GIP and the exchange of information amongst industry, public authorities and other relevant actors. A 10-day "festival countdown" on the Internet will be held as a "virtual event" to encourage people to think about the development of "cyberspace" and reflect on the impact modern technologies would have on their lives.
- On September 16, 1996, a first prototype of the Global Inventory Project was demonstrated to a group of 23 members of the European Parliament in an event chaired by Commissioner Bangemann, and lead by Mr. Nicholas Negroponte, Director of the MIT Media Lab. In 1997, once the GIP has been fully implemented and operational, a possible follow-up to this event is envisioned.

1. Address of Participating National Sites:

Canada: http://strategis.ic.gc.ca/sc_indps/sectors/engdoc/cinch_hpg.html

European Commission: <http://www.ispo.cec.be/>

France: <http://acts.inria.fr/AI/>

Germany: <http://www.bmwi-info2000.de/>

Italy: <http://risc590.bologna.enea.it/GIP/>

Japan: <http://www.mpt.go.jp/Global-Inventory/Japan.html>

United Kingdom: <http://www.tagish.co.uk/nip/>

USA: <http://nii.nist.gov/g7/g7-gip.html>

GIP Host and offshore server site: <http://www.vol.it/GIP> (temporary -to be changed in 1997)
(Note: direct links between the GIP Host and the National Servers have been established)

2. Address of Participating International Organisations:

World Bank (InfoDev): <http://www.worldbank.org/>

Information Society



Global Healthcare Applications Project

G.H.A.P.

**G-7 GLOBAL HEALTHCARE
APPLICATIONS PROJECT
(G-7 THEME 8)**

**6TH PROGRESS REPORT
DECEMBER 1996**

FOR ADDITIONAL INFORMATION

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2. Global Interoperability for Broadband Networks



Government of Canada
Department of Industry

Gouvernement du Canada
Ministère de l'Industrie

FACSIMILE COVER SHEET

FORMULE D'ENVOI PAR TÉLÉCOPIEUR

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Subject: **G7 Pilot Projects National Coordinators Meeting**
Objet: **- Theme 2, GIBN, Status Report**

No. of pages: 12 (inc. cover)
No. de pages

Date: December 16, 1996

Attached please find the status report for Project Theme #2, Global Interoperability for Broadband Networks (GIBN) (Annexes not included). The report has addressed most the points in you fax of 28 November, but, in view of its length, I'd like to summarize them, in the order of your fax, in the following:

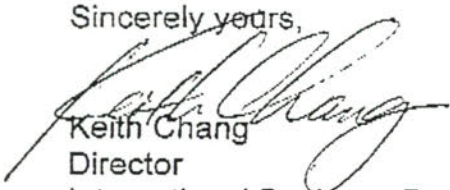
- The GIBN project is currently carrying out its Scenario A (Phase 1) which is scheduled to be concluded in 1997. It plans to begin implementation of Scenario B (Phase 2) in early 1997. No definitive target date for completion has been set. This is a subject for discussion by the GIBN Steering Committee, which is scheduled to meet in late January.

With regard to the target completion date, I would like to note that I have recently had an opportunity to review in some depth all 11 pilot projects in preparation for the speech that I gave to the EITC'96 Conference in Brussels, and noted that most projects are only recently passed the preliminary phase of preparation, organization, and planning, with some barely started the implementation phase. On such complex, global undertakings with no dedicated resources, this is not surprising. However, this also goes to say that one should not expect quick results with early completion dates. It is suggested that a realistic expectation, both in terms of

schedule and results, should be exercised.

- Specific milestones of Scenario A depend on specific application projects currently underway, most of which are scheduled to be concluded by mid-1997. Scenario B milestones are yet to be defined by the GIBN Steering Committee.
- Yes, the private sector companies have been actively participating. These include in particular international carriers. Private sector organizations also participate in applications projects.
- Yes, lack of funding is a problem. So far, the project has been relying on the cooperation of international carriers through the contribution, at their own cost, of intercontinental circuits. Lack of funding, however, has greatly limited the effectiveness of the project. It has limited the role of the project to one of coordinator and facilitator. It is suggested that National Coordinators should address this issue and attempt to find a solution. Raising the profile of G7 Pilot Projects and garnering of political support to allocate some funding is one route. To this end, GIBN can contribute, for example, by staging a high profile demonstration event, possibly concurrent with a G7 conference in 1997.
- Non-G7 countries have not been invited to participate in GIBN yet. It is in the plan, but the Steering Committee wishes to ensure that the project is properly organized first before it is expanded for participation from third countries.
- The address of the GIBN website is: <http://enterprise.ic.gc.ca/G7>

Sincerely yours,



Keith Chang

Director

International Business Development Division

Spectrum, Information Technologies and Telecommunications Sector

(revised - December 16, 1996)

G7 INFORMATION SOCIETY PILOT PROJECTS

Theme 2

Global Interoperability for Broadband Networks

Current Status and Future Plans

GIBN Steering Committee

December 1996

1. INTRODUCTION

To demonstrate the potential of the information society and stimulate its development through global cooperation, Ministers at the G7 Conference on the Information Society, held in Brussels in February 1995, launched eleven pilot projects in key theme areas. Global Interoperability for Broadband Networks (GIBN) is one of the themes which deals with the future development of broadband network infrastructures which will form the foundation of the global information society. The project aims to promote global interconnectivity and interoperability of national research networks and testbeds and to facilitate and accelerate the development and deployment of broadband applications and services.

Following the Brussels conference, a GIBN Steering Committee was formed to oversee the planning and implementation of the project. The Committee is comprised of representatives from the G7 countries and the European Union, including government officials and national broadband research network and testbed operators (Annex 1). In consideration of the important role the international telecommunications carriers will play in the project, representatives of international carriers have been invited to participate in the work of the Committee. The Committee has to date held four meetings and four teleconferences, with active exchanges on the Internet and other media in between meetings.

In the lead up to the Brussels Conference, G7 government and the EC representatives defined in broad terms the objectives, scope, expected impacts, implementation plan and timetable for the GIBN Pilot Project. This was published in a document entitled "Global Interoperability for Broadband Networks: Moving from Vision to Reality", dated February 13, 1995. This plan has served as the starting point and a reference for the Committee's work, with modifications and refinements having been made in accordance with the necessity of practical circumstances and considerations.

Two brief progress reports on the project have been published as part of the G7 Information Society Pilot Projects Progress Reports. These latter were released on the occasions of the Halifax G7 Summit, June 15-17, 1995, and the Ministerial Conference on Information Society and Development, held in Midrand, South Africa, May 13-15, 1996.

The purpose of this document is to provide a more comprehensive overview, as well as an update, of the progress and the current status of the project. A future outlook of the project, including the vision and the plans, is also elaborated.

2. OBJECTIVES, STRATEGY AND IMPLEMENTATION PLAN

a) Objectives

The aim of GIBN is to facilitate the early availability of an international broadband network capable of supporting a wide range of applications by encouraging the interconnection of broadband research networks and testbeds globally, beginning with the G7 countries. Each of

the G7 countries has well developed national plans for deploying advanced broadband networks to support education and research, and they are seeking to interconnect these national facilities to create a versatile international network. GIBN provides a forum for the high-level coordination of national plans together with high-level access to the major international telecommunications carriers. This unique combination of interests offers the opportunity to accelerate progress in the development of broadband networks and applications.

Thus, the fundamental goal of GIBN is to provide a means for developing and testing transnational broadband applications that will support the promise of the Global Information Society. To achieve this, it was necessary to ensure and enhance the general level of interconnectivity and interoperability amongst existing and planned high-speed networks and testbeds in the G7 countries. The purpose and objectives of GIBN are therefore to facilitate the establishment of international links between the various high speed networks in order to:

- facilitate the testing of the interoperable capabilities between the various networks at all the required levels of transport;
- identify any shortfalls pertaining to interoperability so that the involved carriers and manufacturers may take the appropriate actions to alleviate the problems;
- provide a stable platform whereby multinational applications may first be tested while in the development stages before they evolve to full commercial service; and
- facilitate the testing of the interoperable capabilities through satellite networks for major applications including high definition video transport.

The specific objectives of GIBN are:

- to foster the creation of stable world-wide, state-of-the-art high-speed broadband research network and testbeds by linking the national high-speed research networks of all G7 countries at speeds of 35/45 mbps initially and 155 mbps or higher at some later date;
- to facilitate the establishment of testbeds for testing and developing new applications and products; and
- to validate the role of satellites as part of the high-speed networks by linking national high-speed networks with satellites and testing applications.

b) Implementation Framework

At the first Committee meeting held in April 1995, it was decided that GIBN could best advance its objectives by identifying and encouraging mechanisms for cooperation. The first priority was thus to establish intercontinental links between the three main geographic areas: North America, Europe and Japan. GIBN members also recognized that there would be a need to elaborate a framework to allow international carriers to provide transmission capacities at reduced charges for research communities -- within the framework of an acceptable usage policy. Within each main geographic area, intercontinental carriers were to be informed of GIBN discussions and be invited to participate fully.

GIBN representatives noted that key interoperability problems lie as much at the "user interface" level as at the "technical transport" layer. As a result, it was agreed that focus should

not reside solely on interconnectivity of networks, but also on end-user application interoperability. A mix of pilot projects would be encouraged which addressed both problem areas.

Interconnection would be a gradual, step-by-step process and that networks and applications need to be recognized as mutually linked and interdependent. The other pilot project theme areas established at the Brussels G7 Ministerial Conference could be supported by the GIBN interconnected network provided that these projects required broadband connectivity and met GIBN objectives, and given resources availability. Priority would be given to large-scale applications, to achieve a "critical mass" as quickly as possible.

Three working groups were established to undertake important aspects of the Committee's work. These working groups are:

- Working Group on Guidelines for Carrier Participation, led by the U.K.
- Working Group on Authorized Use Policy (AUP), led by the U.S.A.
- Working Group on Applications, Technical and Operational Issues, led by Japan

The working groups have successfully carried out their work with the results having been served as the basis for the Committee's continuing work.

c) Implementation Strategy

In addition to establishing connectivity on an intercontinental basis, the GIBN Steering Committee recognized the importance of stimulating the early emergence of commercially viable broadband applications. The Committee recognized at the same time that as with Internet, the early interconnection the broadband research and educational networks and testbeds can play a crucial role in identifying or stimulating commercially viable broadband service.

The Committee considered two scenarios for the implementation of the project to reach its objectives:

- Scenario A: It was agreed that it was important in the near term to experiment with and demonstrate selected new broadband applications and services for a fixed duration of time where much can be learned in terms of interoperability and feasibility of applications. This approach would be based on the contribution of trans-continental circuits by international carriers. In addition to raising the profile of broadband applications, this approach could also result in earlier identification of their commercial viability.
- Scenario B: This scenario would focus on facilitating long-term, production-level interconnections of broadband research networks and testbeds across the three continents which can serve as the basis for the development of any and all broadband applications.

While different in approaches, both scenarios have the development of broadband applications as the primary objective. In Scenario A, the applications are individually "selected"

for experimentation and demonstration based on consideration of their suitability for broadband networks and possible early availability and commercial viability. In Scenario B, on the other hand, a wide range of applications are "enabled", with possibly new, unforeseen applications developed or evolved, through the interconnected broadband networks.

Both scenarios offer advantages and merits. Scenario A tests the feasibility and promotes the awareness and acceptability of early application candidates. Scenario B, on the other hand, is scalable, which is a very important and fundamental factor in applications development, as scalability leads to critical mass which in turn leads to self-sustaining ongoing growth and widespread acceptance.

The primary focus of GIBN has so far been on Scenario A. It is planned, however, that beginning in 1997, the project will move onto a new phase with the implementation of Scenario B.

3. PROGRESS AND ACHIEVEMENTS TO DATE

a) Achieving Global Broadband Interconnectivity - with Cooperation from International Carriers

The Committee recognized the key role that international carriers would have to play in meeting the GIBN objectives. Consequently, the GIBN Chair wrote all G7 international carriers and invited them to participate in the GIBN initiative. The response was highly positive with 12 carriers agreeing to participate. Three meetings were held with the international carriers which included AT&T, British Telecom, Deutsche Telekom, France Telecom, KDD, Mercury, MCI, Sprint, Stentor, Teleglobe, Telecom Italia and Unitel (since renamed AT&T Canada).

The Committee had productive discussions with the carriers to establish means of supporting international applications development and trials which met the following objectives:

- that it interconnect all networks within the G7 (and eventually other countries) as soon as possible
- that as many experimental pre-commercial applications are supported as possible
- that this support be provided for as long as possible
- that interconnection and interoperability is achieved cooperatively

Starting with the initial meeting the carriers expressed willingness to assist GIBN in accelerating the interconnection of national testbeds and research networks and to support application projects. Several offered intercontinental links subject to further details being worked out.

The international broadband interconnectivity is taking shape through a number of support initiatives offered by international carriers:

- The Canada-Europe interconnectivity has been accomplished through a high-capacity link (155 mbps) using CANTAT-3 trans-Atlantic cable made available by Teleglobe.

The link supports GIBN application trials between Europe and North America. To date, this cable has supported a number of demonstrations and applications.

- The Japan-USA interconnectivity has been accomplished by KDD and AT&T partnering in providing a trans-Pacific link (155 Mbps) using TPC-5 fibre optic undersea link to the USA. The link is supporting 4 specific Japan/USA application trials for 6 months each. In fact, KDD has offered the Japanese half of this link for any GIBN experiments until the end of 1997. 24 hour availability is being provided.
- A group of carriers comprising Sprint, Teleglobe, Deutsche Telecom, France Telecom and Telecom Italia in a formal written proposal agreed to provide a trans-Atlantic network using two undersea fibre optic cables. The consortium is providing project and network management, and would offer the network for trial applications at reduced rates. They will consider application proposals on a case-by-case basis, guided by the GIBN Authorized Use Policy. Once operational, the network will greatly enhance the Europe-North America interconnectivity.
- The Canada-USA interconnectivity is recently established by AT&T Canada and AT&T USA with a high-speed link from CANARIE's National Test Network to Chicago for interconnection with vBNS and other high-speed networks in the USA.
- Within Europe, it is worth noting that the JAMES project, being implemented by a consortium of European Union member state telecommunications operators, led by France Telecom, and funded partially by the EU ACTS Programme, is providing intra-European connectivity, which will provide a vital link to the other G7 countries.

While some of the interconnections are limited in scope or duration, it is nevertheless worthwhile noting that in large measure as a result of the GIBN efforts, broadband interconnectivity among G7 partners are becoming a reality.

The policy regarding transit traffic is an important issue an interconnected network. This is particular so for commercial operations. It is hoped that for test network and pre-commercial operations, the issue can be simplified. It is worth noting that in this regard, Teleglobe has offered to provide transit passage via their CANTAT-3 for GIBN projects provided that the European and USA carriers reciprocate and offer transit through their networks.

The current G7 interconnectivity network map can be found in Annex 2.

b) Developing Broadband Applications

Encouragement of the development and testing of international broadband applications is the central goal of the GIBN project.

Under the leadership of Japan, chair of the Working Group on Applications, Technical and Operational Issues a format for the submission of requests for participation in international cooperative projects was prepared. With inputs by the G7 representatives a comprehensive list of organizations seeking partners was compiled. The demand for international trials was most

impressive with 107 requests having been identified, of which 45 are based on native ATM, 25 IP over ATM, 3 a mix of native and IP over ATM, and 34 undetermined.

The GIBN Steering Committee members have placed their lists on their own Web sites, which are hot-linked into the G7 GIBN site (<http://enterprise.ic.gc/G7>) so that they could be broadly accessed by potential partners. Readers are encouraged to scan these lists to identify potential partners. The Committee members are also publicizing these opportunities within their countries.

As a result of the promotional efforts to date, 15 application projects that are ready to go ahead with the support of participating carriers have been identified. These are projects that take advantage of the broadband capability of the networks. They touch on areas of common global interest, such as healthcare, education, collaborative virtual work, advanced simulations, advanced multi-media and high-energy physics trials. These applications are:

- 1) Verification Experiment of Telemedicine in Treating Cancer and Other Diseases (Japan, US);
- 2) Verification Experiment of Telemedicine in Neurology (Japan, US);
- 3) Application Development Using Broadband Research Network (Japan, US);
- 4) Quality Control through ATM Network (Japan, US);
- 5) Cost-effective, Quality-Controlled Patient Management Based on Information Highways (US, Canada, Germany);
- 6) SPOCK - Application of Multimedia Teleservices to Aircraft Industry (Germany, France, Italy, Canada);
- 7) Virtual Classroom (Canada);
- 8) ACTS Summer School 96 (Germany, Italy, Canada);
- 9) Collaborative Simulation, Visualisation (Germany, US, Canada);
- 10) Distributed Virtual Studio Production and Virtual Reality Simulations (Germany, US, Canada);
- 11) Remote Collaboration in High Energy and Nuclear Physics (1st Phase - Germany, France, Italy, UK; 2nd Phase - Canada, Japan, US);
- 12) Cardiovascular Health Network (1st Phase - France, Italy, UK; 2nd Phase - Canada, US);
- 13) Computational Fluid Dynamics and Distributed Visualisation (Italy, US)
- 15) Northwold Systems and Services Limited Project IBCoBN

Fourteen of the initial application projects was announced during the South Africa Ministerial Conference on Information Society and Development (ISAD), May 13 -15, 1996. The GIBN Steering Committee, the participating international carriers, including KDD, AT&T, Sprint, Teleglobe, France Telecom and Telecom Italia, and several G7 governments issued press releases to mark the achievement of this important GIBN milestone.

A review of the status of all the projects was carried out at a multimedia telemeeting held on December 13, 1996. The telemeeting involved 4 sites, i.e. Brussels (Belgium), Lannion (France), Stuttgart (Germany) and Ottawa (Canada), with the project primes giving presentations on the implementation status of the projects. The telemeeting indicated that all projects are progressing well, with one having been successfully completed.

The December 13 multimedia telemeeting was in itself a successful demonstration of a promising potential application of global broadband networks. Using the Teleglobe CANTAT-3 trans-Atlantic cable linking the European broadband networks provided by the JAMES consortium and Canada's National Test Network of CANARIE, the ATM-based telemeeting substantially advanced the videoconference technology. It allowed the participants to present and consult in real time with various forms of material, including voice, video, text, graphics, etc. The telemeeting used the Multimedia Collaboration (MMC) software developed by DeTeBerkom.

More details of the GIBN applications projects and their current status can be found in Annex 3.

c) Satellite based Broadband Network and Applications

Because of their broad coverage and multi-casting capabilities, satellite communications will no doubt play a key role in the Global Information Society. The use of satellites, such as ACTS, ESA and Intelsat, offers an alternative and complementary means of providing intercontinental links for broadband applications, especially in support of projects to remote areas or areas not served by high-speed fibre networks.

In November 1995, a Quadrilateral meeting on International Joint Experiments for Satellite High Data Rate Communications was held, with Japan (MPT), USA (NASA), Europe (European Commission and ESA) and Canada (Communications Research Centre) attending. The purpose was to promote satellite communications experiments between Quad countries/regions. The members prepared an Action Agenda which endorsed the G7 GIBN initiative and committed members to contribute to the success of GIBN and more importantly identified 10 applications and trials which would involve the 3 continents. The 2nd meeting of the GII Satellite Quadrilateral Working Group was held in September 1996 and reviewed the status of satellite-based broadband experiments. The WG agreed on its charter and reconfirmed its continuous cooperation.

The Quad group intends to move ahead to resolve technical issues of interconnection and to start to develop the 10 applications identified.

Links between Japan and North America could be provided through the cooperation of Intelsat and NASA, which would use its ACTS satellite to provide connectivity. An application experiment using this satellite link, that is, "Remote High Definition Video Post-Production Application using Satellite" experiment, is being prepared with the target of demonstrating at the next meeting of GIBN Steering Committee, scheduled for January 1997 in Tokyo.

An Intelsat satellites-based Japan-Canada connection is currently being actively pursued, with an HDTV or other broadband applications demonstration being planned for Intercomm '97 in February in Vancouver. Such a satellite-based link could contribute to global interconnectivity with the extension to Europe via submarine fibre cables across the Atlantic.

Japan (MPT) and ESA are planning a joint project, Japan-Europe GAMMA (JEG). ESA plans to treat JEG as a part of the GAMMA project of the ACTS programme of the European

Commission. JEG will provide a satellite link directly between Japan and Europe and will demonstrate some multimedia applications. It is aimed to begin these applications in April 1997.

d) Other Broadband Demonstrations and Promotion

GIBN has also inspired a number of transcontinental broadband demonstrations. The Brussels Ministerial Conference on the Information Society stimulated some of the early efforts, which were followed by a series of other successes in "live" broadband interconnection trials and exhibits. Examples include:

- The World's first ATM-based, transcontinental medical consultation between the Berlin Heart Institute and the University of Ottawa Heart Institute with the cooperation of Teleglobe (providing their undersea fibre optic cable), Bell Canada, Deutsche Telecom and Belgacom, during the Brussels Ministerial Conference.
- On the same occasion, the world's longest ATM linked demonstration from Vancouver to Brussels, a distance of more than 10,000 kilometres and connecting ATM switches from several different manufacturers, demonstrating the global cooperation of a number of international carriers and ATM switch manufacturers in successfully proving out their technologies.
- In January 1996, CRC BADLab (Canada), DeTeBerkom (Germany), the Technical University of Berlin and the University of Salzburg (Austria) cooperated in performing multimedia protocol testing on high-speed International links provided by CANARIE, Teleglobe and Deutsche Telekom.
- On the occasion of the Tenth Anniversary of DeTeBerkom in April 1996, the CANARIE test network was used to connect BADLab to a DeTeBerkom site via CANTAT-3 fibre-optic cable.
- In June 1996 at Medicine 2001, through the support of France Telecom, Deutsche Telekom and Teleglobe, a live ATM transmission from Strasbourg to Montreal involving a telesurgery procedure on an actual patient was observed by the Montreal audience proving out the feasibility of remote observation of surgery as a teaching tool and teleconsultations on a global scale.
- In July 1996, Canada participated, through a trans-Atlantic ATM link, in the 4th annual Advanced Broadband Communications Summer School (ABC'96), which marked the first time that ABC had an intercontinental connection and North American participation. ABC'96 was sponsored by the European ACTS Programme with the support of JAMES network and NICE project. It involved a multitude of sites in non-G7 as well as several G-7 countries.
- KDD, NTT and AT&T announced that multimedia application experiments using high-speed ATM network will be conducted between Japan and the US from September 1996 to February 1997.

4. THE NEXT PHASE

a) Realization of a Vision

A series of recent events are lending new impetus, and raising new challenges, to GIBN in its effort to promote global interoperability for broadband networks. In early October, for example, President Clinton called for \$500-million in federal moneys to improve Internet capabilities at 100 universities and at national research laboratories and other federal institutions to create Internet II to communicate at speeds 100 to 1,000 times as fast as current connections allow. In Europe National research networks are in the process of being upgraded to broadband speeds and the TEN-34 project is an ambitious plan among European member states to establish high-speed operational linkages among the National research networks. In Japan broadband networks linking a number of government research institutions, firms and universities are in place and Japan would now like to link these networks internationally. In Canada discussions are firmly underway to create CA*net II, a quasi-production network, operating at high speed and linking most universities and research institutions.

As these national initiatives are being planned and implemented GIBN has an important role to play in encouraging and coordinating the interconnection of these emerging networks. As described earlier, the GIBN Steering Committee established a two-phased strategy to achieve its goals of facilitating global broadband interconnection and accelerating the emergence of commercial and public service products and applications. Scenario "A" is successfully under way and has by and large achieved its intended objective of experimenting with and demonstrating selected new broadband applications and services, with much having been learned in terms of trans-continental interconnectivity and interoperability. It is expected that the trials of most of the current applications and services will be concluded by mid-1997. While demonstrations and trials of applications and services will not be ruled out in the future, they will be carried out very selectively and will be limited only to those that could truly demonstrated global interoperability and those that could raise high profile and generate large impact on the development of the Global Information Society.

The time has now come to consider moving into the next stage, i.e. Scenario "B", which aims to encourage the early interconnection of broadband research and education networks to create a pervasive and versatile international broadband network capable of supporting a large, diverse, evolving and, ultimately, commercially viable set of applications. In short, Scenario "B" should respond to the new challenges and realize the GIBN vision.

While the GIBN Steering Committee has yet to fully address the implementation of this scenario, it is envisaged that the existing or planned national broadband research networks and testbeds in each country would, under this scenario, be interconnected via international broadband links to create an extensive international broadband network. The key element is that many sites will be automatically connected without special provision creating a large ready-made user population. Additional sites can be connected where appropriate. A large number of applications will be enabled (many are already available at the national level). Unforseen applications may also be discovered. The GIBN, carriers, etc. can highlight particular applications as showcase examples of the use of international broadband.

As part of this new focus, GIBN, in cooperation with other organizations (see below), should address and resolve, or facilitate the early resolution of, issues or problems that impede the global interoperability of broadband networks. These issues may include, for example, a) validation and adoption of the acceptable usage policy, b) guidelines and policy regarding transit traffic, and c) principles for cost sharing of international high-speed links.

The availability of resources, or lack thereof, to effect such interconnection would be a major challenge, particularly given that G7 Pilot Projects do not possess central funds. However, it is worthwhile noting that most national broadband research networks and testbeds have an allocation of resources, from programme funds or usage revenues, to international interconnections. With a coordinated effort of such allocations and with possible support from international carriers with advantageous rates, it is not impossible to realize the global interconnection of production-level broadband networks. GIBN should and intends to play this catalyst and coordination role as it enters into its next phase.

To move forward with the implementation of the vision and to address specific issues involved, it is envisaged that working groups will need to be established. As well, a meeting of all key research network operators and other stakeholders will be considered.

b) Linking Regional Networks to Achieve Global Interoperability

Over the past year, a number of regional initiatives have been taken, aiming at interconnecting national broadband networks at regional levels. These include, notably, the Asian-Pacific Information Infrastructure (APII) initiative launched by the Asia-Pacific Economic Cooperation forum, the Asia-Pacific Advanced Network (APAN) initiative, the Joint ATM Experiment on European Services (JAMES), Trans-European Network initiative, TEN-34, etc. These initiatives have the goals and objectives similar to those of GIBN at regional levels. The goals of global interoperability can be best achieved through cooperation and coordination with these regional networks. It is intended therefore that for the next phase, GIBN will actively pursue such cooperation and coordination to achieve its goals of global interoperability.

It is noted that at global levels, there are international organizations, such as the International Telecommunications Union, that are concerned with interconnectivity and interoperability of global information infrastructures. GIBN will cooperate with relevant international organizations to maximize synergism and minimize duplication. Cooperation and coordination with such international grouping as the Coordinating Committee for Intercontinental Research Networking (CCIRN) with a view to identifying and achieving the common goals.

As the authoritative, representative body of the world's largest industrialized countries with strong broadband network capabilities, and given its openness, GIBN is in a pivotal position to bring the national and regional broadband networks together to achieve the global interconnectivity and interoperability. All efforts should therefore be made to bring this prime, influential position of GIBN to bear.

It is worth noting that the participation of international organizations in the G7 pilot projects are specifically encouraged by the ministers during the Brussels Conference.

c) Reaching Out - from G7 to Global

Since its inception and as its activities became more broadly known, non G7 countries have indicated interest in joining the GIBN project. These countries include, among others, Switzerland, South Korea, Norway, Russia, Sweden, Finland, Israel. The GIBN Steering Committee welcomed the interests expressed by these countries and considered that the participation of non-G7 countries would be essential if the project is to achieve its "global" objectives. The Committee takes particular note of the principle of G7 pilot projects being open to non-G7 participation as established by the Ministers during the Brussels Conference.

While taking into consideration the above, the GIBN Steering Committee decided that in order to ensure that the project is well planned and can be implemented in an orderly manner, the initial, preparatory phase should begin with the G7 partners. It is planned, however, that as the project enter into the next phase in 1997, non-G7 countries will be invited to participate.

As part of the process of involving non-G7 countries, international organizations, and the private sector, the Committee is considering an open global conference, to be held in 1997, to inform interested parties of the progress made by this project and to encourage the broadest possible participation.

7. CONCLUSIONS

Following the launch of the GIBN project at the Brussels Ministerial Conference in February 1995, much has been accomplished. Working cooperatively together, the G7 partners have defined the goals, objectives and plans for a joint project that would facilitate and accelerate the development of an interconnected and interoperable global information infrastructure. With the support of international carriers, a series of trans-Atlantic and trans-Pacific broadband applications have been launched, with several having been completed and others currently underway. Many inter-continental broadband demonstrations have also been carried out. Most importantly, as a result of the GIBN efforts, limited-scope broadband interconnectivity among G7 partners are becoming a reality.

With GIBN successfully concluding its initial phase, Scenario "A", the GIBN Steering Committee will soon begin to focus its attention on the next phase of the project implementation, Scenario "B", which aims to foster long-term, production-level interconnections of broadband research networks and testbeds. Given the absence of dedicated central funding for such interconnections, which has been and will continue to be a challenge, GIBN will have as its objective to accomplish this by acting a catalyst and through coordination with key players involved. Cooperating and coordinating with international organizations having regional broadband network initiatives will be key to achieving GIBN's global interoperability objective. Also, to achieve this global objective, GIBN will, during its second phase beginning in 1997, enlarge its scope by inviting the participation from non-G7 countries.

3. Cross-Cultural Education and Training

G7 Information Society Pilot Project Theme 3: Transcultural Education and Training (TEL*LINGUA)

The Feasibility Study preparing the operational pilot project, for EU member States supported by the European Union DG XIII, was carried out and finalised in almost all content areas in mid December 1996.

The study was co-ordinated by France and Germany with the aim of a coherent set of recommendations for decision makers and institutions, to set up the operational work in a way it promises maximum benefits for the development of network based transcultural education and training and the language industry.

With priority it concentrated on the co-ordination of existing national structures and national strategic developments in the G7 members, in other advanced countries (Australia, Greece, Portugal, Spain, Switzerland) as well as of the EU as a whole.

The study was organised in 10 workpackages, to identify on a global basis the users' needs, the educational strategies to be used to respond to those needs, the global structures of the server network, the identification of existing and upcoming resources, good practice, quality and certification.

The study will allow the pilot project to concentrate on those activities crucial for the success of a global networks in that area, giving market forces the space for quick and adequate development, encouraging and supporting innovative actors of all kinds and restrict pilot project activities to those areas, where they can help to bring together critical masses more quickly and to overcome fragmentation.

The feasibility study took a strict user needs view, looking for those recommendations for actions, where a consensus of the global actors could be identified. To do so an experimental network of pilot-servers was set up, which directly implemented functionalities proposed in a way, it allowed first concrete experiences and discussions.

At the moment this 'Experimental Global Server' can be addressed under the international domain 'tel-lingua.org', branching from here directly to the servers now operational in this network at Erlangen (D), Genève (CH), Madrid (E), Paris (F), Warwick (UK).

To dispute recommendations and to create consensus, a global Consensus Conference was organised on 07.-08. October 1996 in Torino under the name 'TEL*LINGUA'. Due to the worldwide recognition of that event and the good resonance, 'TEL*LINGUA' was chosen as the title for all activities of our pilot project. The Conference was attended by 158 decisions makers from 15 countries, all of them on personal invitation to guarantee relevance of decisions and recommendations of the Conference. The Conference documentation will be available from 20. December '96 on, in print as well as on the experimental server network.

At the moment preparatory work is done, how to set up operational activities following the consensus recommendations elaborated. Organisationally a light co-ordinating umbrella structure is prepared - based mainly on shared national funding - , which should help to set up and carry out sub-projects following the grid defined by the feasibility study, based on support programmes and actions already existing in the countries participating resp. in transnational programmes. Such a structure allows high flexibility and a quick continuation of work, not needing a synchronous and complete involvement of all G7 and other interested countries in all lines of action. Participation in the forthcoming calls of the EU following such a strategy is in preparation.

A meeting of all national co-ordinators to take further decisions is planned for early February '97, a Canadian invitation to Toronto for that meeting exists. Additional countries have officially expressed their interested to participate (e.g. Korea), others announced such an official interest coming up soon.



*Transcultural Education and Training in Language
Learning Innovations for Better Global Understanding
and Awareness*

G7 "Information and Society" Pilot Project
Theme 3 : Transcultural Education and Training
TEL*LINGUA Feasibility Study

General coordination

The feasibility study TEL*LINGUA

The G7 Theme 3 *Transcultural Education and Training* pilot project resembles a two-storeyed rocket. On November 30th, with the completion of the feasibility study, the course of the first storey comes to an end. We hope it should have put TEL*LINGUA onto the right trajectory. The second storey should soon begin. That is the project itself. Its aim is the development of an international network concerning language education and training in conjunction with the cultural discovery required for learning a language. First and foremost, it is a human network that interconnects skills, but it is also a physical network of information, represented by a virtual "global" server, i.e. an international network of servers working directly together, offering on line, all the available resources in the field, presenting experiments, products and a platform for an exchange of observations, connecting teachers, trainers and users. In other words, everything that can be of assistance in the interactive apprenticeship of languages, in order to improve their knowledge and promote understanding of cultural differences between different countries.

The Workpackage coordinators of the feasibility study sent in their reports and recommendations. These reports were presented at the Consensus Conference which was held in Turin at the Lingotto Conference Centre October 7th and 8th, 1996. There were 150 people from 15 different countries. Recommendations were discussed in workshops. They were consolidated and enhanced. The results of this conference and the conclusions are presently being sent to all partners and people interested in the project.

This feasibility study, which must be considered as the first stage of the pilot project, has provided a better understanding of the difficulties to be overcome on a theoretical basis and, at the same time, by observing network activities. On realistic grounds, it has endeavoured to create and manage an operational plan adapted to the G7 Theme 3 Transcultural Education and Training Pilot Project. Its framework and coordination mechanism has been placed at the disposal of all the countries interested in the project. The final report and the recommendations for the future of the project are presently being written.

France, Germany and Italy have been the main partners, directing the study along with associate partners: the United Kingdom, Spain, Portugal, Finland, Switzerland and Greece. Many interested countries remained observers (Australia, Canada, Japan, Korea, and Brazil...) The experience showed that it is not always easy to find the right person to deal with - the interest shown is an incontestable fact and collaborations are confirmed every day.

A follow-up coordination, together with regular reports, has shown that although the starting up of an international collaboration takes a long time, it becomes possible in an asserted structure endowed with operating means.

A network of servers and work groups

Two experimental TEL*LINGUA servers (French and German), which represent the prefiguration of the project network of servers, can be located at the following address: <http://www.tel-lingua.org>. They are already connected to the United Kingdom's NCET server, which has developed a specific service, Spain's Fundesco server, and the Swiss and Canadian servers. For the time being, the choice to develop clear services and make navigation as easy as possible has been made. Multilingual research systems and multimedia functions will start up gradually with the progress of the project, the improvement of techniques and networks, in accordance with the needs expressed.

Private partners

The feasibility study is coming to an end and the TEL*LINGUA project points out that content providers in the public sector must be induced to work with promoters and providers in the private sector. The achievement of this facet has been slow during the feasibility study, and if some private partners as well as publishers had attended the consensus conference and shown their interest, the TEL*LINGUA coordination must make an additional effort in their direction so that the project be better known and partners attracted there in. *Des partenariats doivent être mis en place mais le secteur privé ne s'engagera que lorsqu'il pourra constater que le réseau est géré dans le temps et présente une réelle valeur ajoutée.*

Conclusion

The G7 concept has not its own means and no administrative framework. It is only because of the European Commission's support that the feasibility study has been fully carried out. In future, the principle of a global server could only be considered if a maximum number of countries are involved. During this study, some of the G7 countries remained observers. The main argument for non-commitment was a financial one. It is however important that these countries be included in the TEL*LINGUA project. States must make a decision. It is also of prime importance that the identified organisms in each country work together so as to come to a consensus on the guidance and validation systems for linguistic apprenticeship. It must be pointed out that the number of interested partners and countries effectively involved is increasing.

The feasibility study showed that for such a project, a strong general coordination is needed. In Turin, a consensus was agreed upon regarding the importance of the project and the hope that the French coordination continue was expressed. For this, the material means need to be found, either at the national level or at the international level (the feasibility study's conclusion makes suggestions concerning this subject). A light (umbrella) coordination is not enough, at least in the beginning. Funds are necessary for meetings that need to be held regularly. The motion has been initiated but efforts to involve other partner countries, either institutional or private has to be continued and requires a lot of work in communication all the time. Even with the interest shown for the project at Midrand, developing countries are still not involved, as the means still need to be found in order to establish a well-founded relation and to find appropriate collaboration levels with countries that are interested.

After working together on the feasibility study for one year now, we can say that the TEL*LINGUA coordination and the network which, after all, are beginning to work well, can be maintained, looked after and strengthened for the development of the project that must follow.

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4. Electronic Libraries

Progress report

Project 4 : Electronic libraries (<http://www.culture.fr>)

December 1996

Objectives

The objective of the project is to constitute from existing programs the large, distributed virtual collection of humankind knowledge, made available to a large public via networks, and to advance international cooperation towards the establishment of global electronic library systems.

The project should strengthen the function of libraries and improve availability at international levels of digitized resources including both bibliographic records and information content itself (integrating text, graphics, still images, sound and video information). It will promote the large scale digitization of materials on electronic library systems.

Furthermore, it should demonstrate how integrated digitization techniques support long term preservation as well as enable immediate, easy access to such documents including the linguistic dimension.

Secretariat of the project

France : Ministry of culture (Direction du livre et de la lecture), Bibliothèque nationale de France.

Japan : Ministry of Foreign affairs, Ministry of Education, Ministry of International Trade and Industry, Ministry of Posts and Telecommunications, National Diet Library.

Actions undertaken in 1996

1) ISAD conference (May 13th-15 th), Midrand, South Africa

During the conference, a prototype of Bibliotheca universalis was demonstrated, which made a great success. This prototype gave access to multimedia data on the theme of « Africa, Culture and Civilization » supplied by G7 partner countries.

2) Informal meeting in Tokyo (March, 14th)

An informal meeting was held in Tokyo. Participants from France, U.K., U.S.A. and Japan discussed the demonstration for the ISAD conference in Midrand, establishing working groups and the planning of an international survey on digital collections.

3) Survey on digitization programs

The Secretariat has prepared a survey on digitization programs for the purpose of sharing the information on current technologies, standards and methods applied to digitization programs among all partner countries (G7 and non-G7) and on national policies or strategies as far as digitization is concerned.

Actions to be launched in 1997

1) The survey is due February, 15th, 1997.

2) The next meeting will be held at the Library of Congress (USA) next spring. The participation of private sector corporates will be discussed.

Miscellaneous

The project has no duration per se. Bibliotheca universalis means to improve concertation between countries as far as digitization is concerned.

All expenses related to the project have been supported by the partners.

As mentioned above, the project will be open to countries which shall launch digitization programs.

5. Electronic Museums and Galleries

G7 PILOT PROJECT No. 5

MULTIMEDIA ACCESS TO WORLD CULTURAL HERITAGE

1. The document adopted at the first meeting of G7 national representatives of Project No. 5, held in Rome in April 1995, focused on a programme of work divided into the following four stages:

- Stage I - Comparative analysis of the present situation and a proposal of standard solutions (through three working groups)
- Stage II - Production of a prototype
- Stage III - Implementation of all the aspects of the prototype
- Stage IV - Evaluation of the demonstration project.

One year after, Stage I was still awaiting completion because of different national situations.

The use of communications networks by an increasing number of Cultural Organisations and Museums, the development of national and international projects in this subject area, the signing of the Memorandum of Understanding promoted by the European Commission (DG XIII) and the final document of the meeting of Museum Curators, have made it possible to lay the foundations for work to begin on Stage II.

2. The second meeting of G7 national representatives for project n. 5, held in Rome on 30 September-1 October 1996 (attended by Canada, France, Japan, Italy, the United Kingdom, the United States and - as observers - the Holy See and Switzerland) produced a new working document which updated the operational procedures for the project laid down at the previous meeting.

Copy of this document is hereby enclosed.

At the meeting, the programme of work was therefore changed to revolve around the following stages:

- 2.1 - Identification of the themes, and the resultant reorganisation of the working groups
- 2.2 - Identification of transnational projects as benchmark prototypes
- 2.3 - putting Project No. 5 and its developments on the Internet

2.1 Four areas of work were identified and the working groups were consequently reorganised.

2.1.1 Conservation of cultural heritage and the dissemination of information.

Quality standards for the use of cultural heritage, standards for cataloguing and digitalisation systems, and for multilingual communication (thesauri and dictionaries).

2.1.2 Legal aspects and proper use

Intellectual property rights and copyright, legal aspects relating to the proper use, conservation and accuracy/reliability of information

2.1.3 Technological research and development

Standards for interoperability systems and multimedia technological applications, communications networks, and user/research and navigation instruments interface.

2.1.4 Experimentation and application

Applications in the field of cultural heritage management and conservation, including the identification of data input priorities, applications to education and vocational training, cultural tourism and leisure and entertainment, for which there is a large and varied public demand.

These areas were assigned to the United Kingdom (2.1.1), Canada (2.1.2), France (2.1.3) and Italy (2.1.4). These countries will act as coordinators with the aim of facilitating communication between the G7 partners and completing the draft of the first interim document by the end of March 1997 in preparation for the following plenary meeting of the G7 Pilot Project.

The new working groups will deal with the issues identified and will be coordinated by an official according to an agreed programme of activities.

2.2 The purpose of the working groups will be to appraise and select a number of project prototypes chosen from among the most suitable that have been proposed. The selection may also take place by complementing similar projects without excluding any other ways of validating projects or products which meet the purposes of the G7 Project.

At the Rome meeting on 30 September-1 October 1996, various national and international projects and initiatives were examined in accordance with the principles and purposes of the G7 Pilot Project.

2.1.1. The "Aquarelle" Project

2.2.2. The Italian National Research Council Cultural Heritage Special Project

2.2.3. Cultural Heritage On Line (CHIO Project)

2.2.4. Also Known As (AKA Project)

2.2.5. Hypermuseum

2.2.6. Iconclass

In addition to these projects the Japanese delegation submitted the following initiatives:

- Common index of museum objects in Japan
- Nara research centre
- The digital archives project

2.3 Recognising the urgent need to give this project greater visibility exploiting existing transmission media, and primarily the Internet, it was decided to set up an Internet Web Server dedicated to the project.

The design of the procedures and the proper management of the Server would be ensured by an Italo-French Permanent Committee to draft a report for the participants by the end of 1996. The Web Server would be designed to achieve the following specific objectives:

- 2.3.1. - to produce a detailed project together with its organisational structure
- 2.3.2. - to update the participants and computer resources every year (thesauri, dictionaries etc.)
- 2.3.3. - to issue a charter of principles laying down the rules to be observed by everyone
- 2.3.4. - to create a permanent forum to deal with the development of the project and the areas of interest to participants

2.3.5. - to provide a virtual demonstration of the selected prototype projects and of all related products and initiatives.

In future the Web Server could be used for more specific tasks, such as organising an exhibition for information on cultural heritage.

An Internet Web Server has already been brought on-stream at ICCD (Istituto Centrale per il Catalogo e la Documentazione) where all the main documents relating to the G7 Pilot Project have been collected. Its address is:

<http://www.iccd.ministerobbcc.it/G7>

At the present time the national representatives of Pilot Project No. 5 are setting up new working groups in the specific area to which they are assigned, and are appointing their coordinators.

A permanent Italo-French committee has been created to draft procedures and to set out the proper management of the Web Server; the coordinators responsible for it have been appointed to serve as contact points for the national coordinators of the four areas of work.

This committee is currently drafting the report for the participants which will be presented at the end of 1996 in order to activate the operations of the Web Server that are scheduled for the first few months of 1997.

Encl 1

G7 MEETING ON "MULTIMEDIA ACCESS TO WORLD CULTURAL HERITAGE" PILOT PROJECT (ROME SEPT. 30TH-OCT. 1ST)

FINAL DOCUMENT

At the Rome meeting of 30 September and 1 October the G7 Representatives took stock of recent multimedia developments in the field of cultural heritage and noted the following.

- A growing number of cultural bodies (including museums, galleries and associated agencies) are exploiting telecommunication networks;
- National and International projects in the field are in progress or in the process of being initiated;
- The Member States of the European Union have adopted a set of principles and procedural instruments, enshrined in a Charter and a Memorandum of Understanding, to foster co-operation among the cultural institutions as well as between these institutions and interested industries for the enhancement of cultural heritage;
- The production and promotion of relevant standards by the International Documentation Committee of ICOM.

Taking account of these developments, together with the G7 guidelines on the Global Information Society, and in particular that relating to the Pilot Project "Multimedia Access to the World Cultural Heritage", the Rome meeting agreed to the following.

- The setting up of four working groups focusing on:
 - 1 Quality standards for the exploitation of the cultural heritage, standards for cataloguing and digitisation systems, standards for multilingual communications, dictionaries and thesauri. (**Presentation of Cultural Heritage and Dissemination of Information**)
 - 2 Intellectual property and copyrights (**Legal Issues, preservation and security of data**)
 - 3 Standards for interoperability systems and multimedia technology applications, telecommunication networks, user interfaces, research tools and network navigation (**Technological Research and Development**)
 - 4 Application in the field of protection and management of the cultural heritage, including identification of data-entry priorities, applications in education and training, application in the field of cultural tourism and entertainment, requirements of different types of users (**Testing and Application**)
- Each working group will be led by a co-ordinator whose task it will be to facilitate communication between the G7 partners and complete first

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intermediate reports by the end of March 1997, in preparation for the next G7 Pilot Project Plenary Meeting.

These areas are respectively assigned to UK (1) USA and Canada (2) France (3) and Italy (4) as the co-ordinators. They will take into account concurrent work already being carried out in different fora, disseminating the emerging information among the seven participants in the Pilot Project.

It is intended that it remains a progressive initiative aimed at meeting a rapidly changing technological environment, diversified market and industrial objectives, as well as cultural requirements still being fully assessed. It is further intended that the Project be flexible, also in order to facilitate the interaction between Eastern and Western cultures, especially in technical issues, and prepare the ground for a possible involvement of partners from other parts of the world, thus stimulating the creation of innovative tools.

The Pilot Project allows opportunities to examine traditional approaches to systems interoperability issues, now mainly based upon setting catalogue and technical standards and matching the different languages (such as thesauri, dictionaries and so on).

In this context the scope of the Pilot Project is to be considered as a forum for the exchange of new ideas and action in the longer term. It should encompass high cultural quality initiatives and products, aimed at fostering a better education of the general public, particularly youth, and a more effective training of professionals.

To better assist these goals it was agreed that an Internet Web Server dedicated to the Project is developed with the following specific objectives:

- a dynamic description of the Project as well as its organisational structure;
- a yearly update of the participants and of all the informative resources (such as thesauri, dictionaries and other);
- a charter of principles, laying down the rules of the game for participants;
- a permanent forum dealing with the Project's development, areas of concern and procedures for communication among the participants;
- a virtual demonstration of the selected prototype projects and of all the interesting products and proposals.

It is expected that in future the Web server may be also employed for more specific tasks: the organisation of a cultural heritage information repository for example.

A drafting committee composed of Italy and France is established with the task of devising the procedures required for the management of the server. It

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will report to the participants by the end of this year, with the view of initiating the operations of the Web server early in 1997.

The above schedule and measures will assist the advancement of the activities originally considered in phase 1 of the project, making it possible to evaluate further specific objectives to be pursued in the follow up.

- How to involve private partners more intimately in future developments of the Pilot Project;
- how to adjust it progressively to a highly changeable environment;
- how to mobilise public and private financial resources that may appear to be necessary for the further progress of the Pilot Project.

All the above are to be analysed in depth within this framework. The next plenary meeting will be convened in Spring 1997.

6. Environment and Natural Ressources Management

7. Global Emergency Management

8. Global Healthcare Applications

Summary of Progress Report 1996

At the beginning of 1996 technical feasibility studies have been launched (see Annex 2). They were funded by the European Commission and open to the contribution of all G-7 countries and actors involved.

In 1996 also, several countries have expressed interest and nominated observers for this G7 Global Healthcare Applications project or in individual sub-projects (Australia, Greece, Ireland, Korea, Sweden and Switzerland). Furthermore, the interest of several industrial partners and private and public associations has been raised at the level of several individual sub-projects (notably Deteberkom, France Telecom, IBM, the Japanese Industrial Association, Matra, Hewlett-Packard and Telecom Italia). Some of these partners have also announced their willingness to commit themselves financially notably for sub-project 3.

In 1996, each of the sub-projects have organised several meetings and activities (see Annex 1) while the G7 coordinators have met twice in Rome on February 26 and May 27-29, 1996, during the Italian Presidency of the European Union.

The preliminary conclusions of the EC-funded feasibility studies have been evaluated by independent technical experts in November 1996, in Brussels. It appears that, while several sub-projects have clearly progressed since the establishment of this G-7 action, especially two areas have already achieved substantial results, namely the coordination of public health activities (sub-project 1) and the harmonisation of use of health cards (sub-project 6).

According to the opinion of the independent technical experts, it is likely that these two sub-projects would be the subjects for promising coordinated pilot activities in 1997. The major issue is now to identify the real financial commitment of the G-7 countries, project by project, to secure the additional resources needed to start a pilot implementation phase in 1997.

This should be discussed and concluded during the January 27-28, 1997 G7 meeting, which will be hosted by the United States in Bethesda (Dr. Donald Lindberg, National Library of Medicine).

ANNEX 1: PROJECT DESCRIPTION

The G7 Global Healthcare Applications Project: Overview

This project is made of seven sub-projects.

Sub-project 1, "Towards a Global Public Health Network" investigates the feasibility of linking existing and emerging public health data telematic networks in Canada, Europe, Japan, the USA, the World Health Organisation, as well as other international health-related organizations. The main challenge is to ensure that the systems are inter-operable across the world. User friendly, fast, cost effective systems hold the key to success.

Sub-project 2, "Improving Prevention, Early Detection and Treatment of Cancer", aims at establishing multimedia databases which will enable health professionals across the world to seek decisional support for patient management and referral. Each participating centre should be responsible for compiling and updating information, for one or more multimedia databases, on specific aspects of the disease.

Sub-project 3, "Improving the Prevention, Diagnosis and Treatment of Major Cardiovascular Diseases" aims at establishing *centres of excellence* providing tele-consultation services and access to multimedia databases. Peripheral centres and health professionals should then be able to access the best possible information and expertise. The *centres of excellence* should also receive information on the long-term follow-up of patients from peripheral centres and medical partners.

Sub-project 4, "A 24-hour Multilingual Telemedicine Surveillance and Emergency System Around the World" could provide the basis for a 24-hour multilingual emergency teleconsultation service. This service could benefit a wide range of people including those at sea, travellers, people working in isolated places and those living in regions with less developed healthcare services.

Sub-project 5 "Enabling mechanisms for global healthcare network" aims to identify the most efficient tools and communication infrastructure for accessing and navigating the networks. It should also focus on linguistic aspects - such as on-line translation - and the harmonisation of security standards for patient related data exchange.

Sub-project 6 "International harmonisation of use of data cards in healthcare" aims at ensuring: the harmonisation of data sets and the interoperability of applications and services by complying with relevant international standards; the complementarity and synergy between data cards and telematics networks; and the acceptability to society by meeting demands for privacy and security.

Sub-project 7 "Evidence and effectiveness"

During the G-7 meeting in Rome in May 1996, Canada made a proposal for a new sub-project called "Evidence and effectiveness" (based on the Janus Web-compatible publishing system in Canada), where evidence-linked information is delivered to the point-of-care, while at the same time enabling the retrieval of patient-related information from the point-of-care which contributes to updating the published information. This project will be discussed more in depth during the G7 meeting on January 27-28 1997 in Bethesda (U.S.A.).

Sub-project 1 TOWARDS A GLOBAL PUBLIC HEALTH NETWORK

This sub-project is specifically aimed at bridging the developments in public health data telematic networks taking place in the G7 countries and the European Union. In particular the project is investigating the feasibility of linking existing and emerging public health data telematic networks in Canada, Europe, Japan, the USA, the WHO, and other international health-related organisations. The results will be used to guide and foster implementation, thereby avoiding duplication and helping co-ordinated and cohesive development with a view toward extension to a Global Public Health Information Network.

Description

The following two areas have been selected for initial co-operation:

1. Public health early warnings and communicable diseases:

National and/or regional information systems will be linked to provide both secure and public online access and retrieval of relevant information on public health hazards (such as: food, drugs and medical devices) and infectious diseases (such as AIDS). This will reduce mortality and morbidity as well as prevent the spread and impact of outbreaks of infectious diseases amongst populations.

Furthermore, health related industries can be expected to download and use/exchange relevant information. Also, public health professionals and authorities will be able to retrieve and exchange current public health information on new and re-emerging infectious diseases.

2. Vital statistics:

National and international regulations and agreements govern reporting of public health data. National data bases are established. Such data at the national and international level are essential for each country to compare and identify areas for public health action. Here each country might learn from the successes and failures of other public health programs.

Implementation Plan

- Preparatory studies to remove immediate obstacles (e.g. identify network compatibility issues) and to locate available databases (inventory).
- Feasibility studies to identify a common core of information and data within current national and international (WHO) public health information systems for the agreed areas of initial cooperation (public health early warning and communicable diseases, as well as vital statistics).
- Develop and implement a plan for a Global Public Health Information Network, in consultation with Ministries of Health and in contact with appropriate NGOs and industrial partners, also taking into account financial considerations.

Actions (1996)

- April 1996: Demonstration of available information and discussion of interim results of feasibility study.
- Fall 1996: Consensus conference, including officials from Health Ministries.
- Spring 1997: Public launch of the implementation of the Global Public Health Information Network.

Current Status

In April 1996 a conference of the national representatives of this sub-project was held at CDC Atlanta. Areas for initial cooperation have been agreed to, and shared actions and studies were decided. An inventory of available data bases has been established. Focus for 1996 has been on communicable diseases/early warnings and on vital statistics. Links to the recently established EU-USA task force on communicable diseases have also been connected.

Sub-project 2

IMPROVING PREVENTION, EARLY DETECTION, DIAGNOSIS AND TREATMENT OF CANCER

The objective of this action is to bolster existing international collaboration through the deployment of telecommunication and informatics i.e. telematics based solutions that will place the best available information and expertise at the disposal of health professionals and other human resources in the G-7 countries, and also ultimately throughout the world.

Description

The action covers the two following areas of work:

(1) - The establishment of a network of reference cancer centres. The network has the three following goals:

- To contribute to the development of global databases on (1) Epidemiological data, (2) Carcinogenic agents and protective factors, (3) Good medical practices in cancer care, (4) Bone marrow donor banks, (5) Quality assurance of cancer diagnosis and cancer care, (6) Registration of clinical trials, (7) Effects and side effects of cancer drugs and cancer treatment, (8) Pathology, radiology and radiotherapy.
- To explore the databases on epidemiological data and on carcinogenic agents and protective factors for developing clear messages to the general public concerning possibilities for cancer prevention.
- To explore the clinical databases for designing new treatment regimens.
- To implement and identify the problems of telemedicine in the field of oncology (teleconsultation, telediagnosis, teleconference for discussing treatment protocols on clinical investigations, tele-education).

Criteria for selection of cancer centres have been defined as follows : (1) Sufficient load of patients and large educational and research activities. (2) Already works as reference centre at a national and regional level. If possible experience in the use of telematics for relations with other hospital centres and in networking with other hospitals. (3) Large experience in clinical research and participation to a large number of clinical trials. (4) Great motivation and commitment for an international cooperation in this project (during the initial phase in English language, later hopefully in national language with the help of on-line translation). (5) Willingness to evaluate the contributions of other centres. (6) Availability of staff. (7) Financial support available for international activity from governmental or national cancer associations. (8) Contribution to existing or envisaged databases.

(2) - Linking and improving existing databases to create global databases. The following countries or organisations have indicated interest for taking a leading role in the deployment of the databases mentioned : (1) Epidemiological data (IARC); (2) Carcinogenic agents and protective factors (IARC); (3) Good medical practices in cancer care (US, Can, UK), (4) Bone marrow donor banks (F), (5) Quality assurance of cancer diagnosis and cancer care (NL, B), (6) Registration of clinical trials (ELSEVIER and MRC Cambridge), (7) Effects and side-effects of cancer drugs and cancer treatment (European Agency for the Evaluation of Medicinal Products - EMEA, FDA), (8) Pathology, radiology and radiotherapy (Japan, F).

Implementation plan

1. Existing collaborative activities: There is already a long standing and extensive co-operation between national and international organisations in the cancer field.
2. Type of participants: Besides the national cancer institutes or organisations of the G-7 countries, several international organisations will be involved such as the International Agency for Research against Cancer (IARC) in Lyon, France or the European Organisation for Research and Treatment of Cancer (EORTC).
3. Mechanisms for possible extension to other countries: Other countries will be kept informed and invited to join the project, especially those countries where there is a static or increasing level of cancer death such as in Eastern Europe.
4. Preliminary estimated cost: The costs for a feasibility study and the networking of existing databases into a global database can be roughly estimated at 1 to 2 MECU per global database and the maintenance costs at 0.3

to 0.5 MECU per year. The total costs for all ten major global databases will amount to 10 to 20 MECU. Each participant from the G-7 countries should bear the cost of one or two databases. With respect to the pilot project, the participating centres should incur marginal costs since they will be able to use existing 2 megabit/s links and the 34 megabit/s global interconnections, the cost of which will be born by the G-7 project on global interconnections. The marginal costs for each participating centre could be estimated at about 0.3 MECU per year.

Actions (1996/1997)

1. Selection of reference cancer centres, international organisations and associations with a co-ordinating role international level.
2. Search for Financial support and commitments of countries and participating centres.

Current status

A feasibility study funded by the European Commission has been launched in January 1996. Coordinator of the study: MARI Computer System Ltd, Newcastle (Mr. Din Ghani in close collaboration with Prof. Maurice Tubiana). The sub-project has started studying in a first phase the feasibility of the implementation of a small number of international databases for assisting health professionals in prevention, early diagnosis and treatment of cancer as well as for cancer research. The following preliminary results can be reported:

- *epidemiological data*: A home page for epidemiology for cancer with links to IARC-reviewed sites with cancer epidemiology data could be produced. The European Network of Cancer Registries "EuroCIS" package could be made available on the Web.
- *carcinogenic agents and protective factors*: Discussions are ongoing with Silver Platter about possibilities to make their CD-ROM version of the IARC monographs series on carcinogens available on Internet.
- *best medical practice*: Discussions are ongoing with the Cochrane cancer group in order to investigate how the G-7 framework could best complement their activity.
- *register of clinical trials*: Countries that already fund national or regional registries should establish and demonstrate an appropriate technical solution for a joint register.
- *effects and side effects of drugs*: A small workshop of key (existing commercial) database producers will be set up to debate the possibility of interlinking their databases.
- *quality assurance of treatment and diagnosis*: It is recommended to organise an international workshop on imaging standards.
- *image databases for pathology and radiology*: It is proposed to build on the existing collaboration for Internet telepathology.
- *bone marrow donor banks*: All transplant teams should be connected in order to allow on line selection of the best donor.
- *network of cancer centres*: It is proposed to study the feasibility of the establishment of a network of specialist centres hosting specific information sources. The existing EMBNet model will be investigated for its usefulness in this respect. A number of the above mentioned databases could be supported or hosted through such a network. This will be investigated in the next phase of the study.

Sub-project 3

**IMPROVING THE PREVENTION, DIAGNOSIS AND TREATMENT OF
CARDIOVASCULAR DISEASES**

The objective is to improve the cost/effectiveness and the efficiency of diagnosis management and prevention of cardiovascular diseases by the deployment of healthcare telematics in a co-ordinated stratified system of care. It is proposed to build a modular telematic system linking together: centres of excellence, major operational centres, peripheral centres and single medical practises, providing (1) telematic support for clinical decision making based on both remote expert advice and computer based decision support, that help defining priorities for patient's referral; (2) a set of distributed databases containing alphanumeric data, static and dynamic biosignals and images that allows a continuous update of the computer-aided decision making process; (3) continuing medical education. A strong commitment by the G-7 is necessary in order to co-ordinate and standardise existing local, spontaneous initiatives so that they may become applicable, in a modular fashion, to member countries. This approach can optimise cost effectiveness of medical care and provide a systematic auditing of patient care by health authorities.

Description

A Steering Committee is defining those users needs that most effectively can be satisfied by telematic links in a modular coordinated stratified system of care and their applicability to local practises in member countries. The Steering Committee will nominate a Technical Committee that will define the operational aspects, the adoption of existing standards and of consensus over non-standardised items and will also liaise with the other global healthcare application sub-projects.

Modules linking together excellence centres with major operational centre, peripheral centres (via dedicated telematic connections) and single medical practices (via Internet) will be implemented in each country. The sub-project is making use of available technologies. The modules will be tailored on local practices but with a common design, specifications and definitions. Single users and peripheral centres can seek decisional support for patient management and referral to major or to excellence centres. Centres of excellence will receive information on long term follow-up of patients from peripheral centres and medical partners; each excellence centre will be responsible for organising one or more database on specific aspects; all excellence centres will agree a core set of common data; each excellence centre will define and maintain the specifications of data relative to their responsibility; all centre will gather data on diseases according to the agreed specifications; patients' demographics are private and will not appear in the public database.

Implementation plan (presented in Ottawa, Nov. 1995)Stage 1(1996-1997)

The implementation plan will follow these steps: (1) survey of available initiatives on existing stratified systems of care and on cardiovascular databases; (2) definition of users/participants groups, identification of possible sources of financial support and industrial partners; (3) analysis of users needs; (4) specifications and design; (5) feasibility investigations (clinical and technical); (6) evaluation and validation of the usefulness or regional national and international modular telematic networks; (7) dissemination of results and exploitation.

Stage 2 (1997-1998)

Consolidation of the pilot. Extension of the pilot to a core group of partners. Integration of national experiences into a global network.

Stage 3 (1999→)

Global deployment of 8 databases on the following issues: Surgery, Myocardial Infarct, Percutaneous transluminal angioplasty, Heart Failure, Angina, Risk factor, Pacemakers&intracardiac devices, Stratified systems of care.

Actions (1996)

- January 1996: A feasibility study called "G-7 Cardio", funded by the EC and involving the 4 European G7 countries started 1st January 1996 with the following goals: analysis of users' needs, survey of existing examples of stratified systems of care, definition of clinical descriptors, system design and building of a test model, extension to other countries.
- February 1996: Sub-project conference in Rome 15-16 February. Representatives from all the G7 countries attended together with representatives of other invited countries. Top level industrialists and governments' officers attended also.
- May 1996, Johannesburg: Project G7 Cardio attended both the Heal and the ISAD conferences, presenting a demonstration.

Appointments

- April 95: M. Murakami as Japanese nominated expert
- July 95: Prof. Robert Califf (Duke University-Durham NC), ad-hoc group (by Lenfant), Dr Millicent Higgins (Nat. heart, Lung and Blood Inst-MD), ad-hoc group (by Lenfant), Dr A. Escher (Swiss Academy of Medical sciences), as a Swiss nominated expert
- April 96: Prof. Poole-Wilson as a UK nominated expert.

Current status

A feasibility study has been launched in January 1996. Coordinator of the studies: Prof. Attilio Maseri, Università cattolica, Roma. Deadline for the results of the feasibility study is end 1996. The project was perceived as quite advanced, with a fairly balanced international participation. The steering committee of the sub-project includes representatives of scientific societies worldwide at the highest level. The industrial interest is demonstrated by active participation and investments by Hewlett-Packard and Telecom Italy. More info at <http://www.italy.hp.com:8800/g7cardio>.



Ministero degli Affari Esteri

Direzione Generale degli Affari Economici
Coordinamento Energia, Ambiente
e Cooperazione Tecnologica

Sub project : 8.3

teleFAX

Total number of pages: 2

Rome - December 16th, 1996

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Subject: G7 Pilot Projects National Coordinators Meeting.
Theme n. 8: sub-project "Cardiovascular Network"

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Attached please find the status report for sub-project 3 "Cardiovascular Network" of Pilot Project n. 8 (Global Healthcare Application). The objectives of the study and the key conclusions submitted by the Italian sub project leader, can be summarised as follows:

Objectives of the study

The goal of the G7-cardio is a concerted action which will support a feasibility study and the building of a test model for the Global Cardiovascular Database Project involving the four European G7 countries.

The quality of care and its cost effectiveness could be greatly enhanced by a telematics based stratified system of care capable of: 1) providing on-line expert advice; 2) coordinating patient referrals; and 3) establishing specific data bases for updating computer aided decision



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support tools and for monitoring the cost/benefits of diagnostic and therapeutic strategies.

The development of such telematics based stratified systems of care cannot be left to the initiative of isolated institutions because this will lead to the duplication of work and expenses and because the lack of standardization will delay its modular application across borders.

Key Conclusions (preliminary - November 96)

Although the study has not yet been completed, it is clear that the final objectives will be achieved according to the study specifications. The successful deployment, on a world-wide basis, of the databases that are being developed requires: 1) the commitment of the existing user groups (Cardiological Societies); 2) a flexible technological platform (Internet Technologies); 3) a modular structure for the clinical descriptors (Dynamic Standards); 4) enrichment of the database with qualitative elements (Best Practices, Case Studies and Protocols); and 5) the proficient use of the methodology (Useability and Education). The results achieved so far have demonstrated the feasibility of points 1, and suggest the feasibility of points 2 and 3. Definite proof of the feasibility of points 2 and 3 and that of point 4 will not be available until the end of the study period. Two major obstacles have been identified so far: 1) the availability of full-time dedicated clinical resources, and 2) the high cost of the telecommunication links required.

Agulov

Sub-project 4

A 24 HOUR MULTILINGUAL TELEMEDICINE SURVEILLANCE AND EMERGENCY SERVICE AROUND THE WORLD

The objective of this sub-project would be the establishment of a transnational and multilingual health emergency system able to improve promptness and effectiveness of interventions and service management through telematic interconnections of the emergency points of care and of all actors and services involved. The system should be designed as complementary to disaster medicine services.

Description

Existing or emerging telemedicine centres around the world should play the major role in this sub-project. Such a co-operation could be fostered through (1) launching a study to specify requirements for and to suggest solutions to problems of security, medical liability, cost/effectiveness, confidentiality and management, (2) the establishment of a directory of telemedicine centres fulfilling the requirements, (3) the organisation of conferences involving both telemedicine centres and prospective users. Also pilot projects focusing on specific target groups (for example vessels at sea or offshore installations) could be the basis to test the feasibility of a truly worldwide network.

The action could link up with the world-wide satellite-based distress communication system that has been developed since 1992 on the basis of an international agreement leading to the Global Maritime Distress and Safety System (GMDSS), which is planned to be fully operational worldwide by 1999. International organisations dealing with emergency and search-and-rescue at sea, telemedicine centres and centres of excellence with specific medical expertise, Coast Guard and radio communication services for navigators, satellite communication operators, independent emergency medical teams, Ministries of Health, independent value-added network service providers and insurance companies should be involved in this sub-project. The participants, private or public, should be encouraged to provide emergency services to which all kind of organisations responsible for their employees could subscribe.

A number of systems and also trans-borders services already exist. They could form the basis for the development of the global service as foreseen. A large number of Organisations worldwide are currently involved in Emergency Telemedicine. Amongst others there are: L'Institut Européen de Télémedecine in France, the US Department of Defence, the Massachusetts General Hospital in the USA, the Robert Gordon Institute of Technology in Aberdeen UK, the City Hospital of Cuxhaven in Germany, Centro Radiomedico Italiano in Italy, and similar telemedicine services in Denmark, Norway, Greece, and other countries. Private service companies, telecom or satellite service providers such as British Telecom, Telecom Italia, France Telecom and Comsat in USA are also involved.

Actions (1996)

- Start of the European segment of the feasibility study in January 1996 (duration 1 year).
- Launch of the pilot phase expected in 1997.

Main meetings (1996)

23 Feb '96 in Nice: Project meeting, new participants from Italy (Discussion on general architecture)
 22 March '96 in Paris: Steering Committee meeting and Project team meeting (Pilot projects; Funding of next phase)
 13-17 May '96 in South Africa: Demonstrations in G-7 Conference

Progress of work

- Definition of the architecture of the system: (done)
- Specification of medical requirements: (done)
- Technological assessment and organisation of pilot projects: (ongoing)
- Preparation of the Final Conference to be held in Rome to present the results of the feasibility study: (started)
- A number of bilateral discussions on expert level replaced the originally planned workshop with experts within and beyond the European segment of the feasibility study.

Current status

Contacts with Institutions and private companies that provide on an operational basis emergency telemedicine services have been established. Also contacts with consortia active in the same field in the context of R&D projects funded by the EC have been established.

A feasibility study (European part) jointly signed by France and Italy with the European Commission started in January 1996. Coordinators of the study: CHRU Toulouse (France) and CIRM, Rome (Italy).

Sub-project 5

ENABLING MECHANISMS FOR GLOBAL HEALTH NETWORKS

This sub-project should contribute to the development and use of effective healthcare networks and help to construct a global information society for health. It intends to address the specific tasks listed below.

Standards

1. Definition of common goals and strategies in standardisation in medical informatics, with particular emphasis on standards for medical nomenclature and codes, and selection of existing (de jure and de facto) standards to become ISO-standards.
2. Co-ordination of on-going and future standardisation activities in order to avoid overlaps and the emergence of conflicting solutions.

Access tools and linguistics

1. Evaluation of systems for intelligent navigation, and access/retrieval of medical information and knowledge (such as Janus), graphical interfaces for accessing the Internet (such as Mosaic).
2. Exploration of the feasibility of using on-line translation for international healthcare network services.

Privacy, security and other issues

1. Study on harmonisation of security (confidentiality, integrity and availability) standards for patient related data exchange across international healthcare networks.
2. Study of societal, legal, ethical, organisational and other issues in order to reduce obstacles to the global information society for health.

The sub-project should help to promote the development of interoperable solutions for healthcare networks. Existing collaborative activities: Europe (CEN/TC 251), U.S. (ANSI HISPP), Japan (MEDIS-DC), Canada (Department of Health), Germany (DIMDI, MEDIS, GMDS), and International Organisations such as WHO, IMIA, ISO and others. Other countries can be reached through the channel of the existing regional standards bodies and other relevant international organisations.

Implementation plan

Sub-project 5 should not be developing new standards or products but will be compiling an inventory of existing and available hardware and software tools, standards, coding systems etc., and recommending how these may be exploited and shared. Telephone interviews, written questionnaires and where possible, personal interviews should be conducted with key members of other sub-groups to establish:

- technical functional and physical deliverables required from sub-group 5 in support of their goals.
- an inventory of existing network and end system security techniques/devices in use and, make recommendations/advice on how a common standard tool set might be agreed in support of patient confidentiality and data integrity.
- an inventory of current nomenclature and coding methodologies in use, for clinical messages/objects, especially for cancer and cardiovascular diseases.
- the availability and specification of appropriate navigation tools necessary to provide the functionality.
- the preferred networking medium to meet international messaging/broadband/interactive requirements in support of groups 1-4.
- plans for next stage together with outline funding estimates.

Current status

Sub-Project 5 has produced a report titled "Initial Findings Report" which was presented in the Ottawa meeting of 95, discussed in the Brussels meeting of 27-28 February 1996 and distributed, as version 1.0, to a wide range of G-7 healthcare participants. No feasibility study is being performed.

Sub-project 6 INTERNATIONAL HARMONISATION OF THE USE OF DATA CARDS IN HEALTHCARE

The benefits of using cards containing administrative information for patient identification, social security and health insurance, and basic medical information to be used in emergency are already proven enough for several countries to move towards national large-scale implementations. The administrative specifications are based on two main requirements:

- to identify the patient and his/her entitlement to care: a basic set of administrative data is stored within the card and/or embossed on its surface;
- to identify the medical professional and his/her entitlement to access and/or process the medical data of an individual patient, either locally on the personal card of the patient, or through a telematic connection with a remote data base. Another application is that of accessing information or services reserved to the medical profession, while for the general public this applies to the possibility of receiving personalised medical information and advice.

With reference to the medical data, some countries are considering to develop an electronic patient record as a portable medical file, whose essential information can be stored on a card, together with pointers to the more extended records that are available in remote databases for telematic access. Other applications are aimed at providing essential information about the patient in emergency situations, or to keep track of the history of medications and of compliance to treatment are also considered. Finally, several on-going experiments of patient data cards deal with specific subsets of the patients population (some chronic diseases like diabetes, cardiac risks, pregnant women, newborns, etc).

In general terms the card is not seen as a stand-alone element, but as an enabling component of a more global communication system. The card is seen both as a key used to access the existing telematic infrastructure, providing the necessary user identification and security requirements, and as a medium able to supplement and integrate the existing physical infrastructure for data transfer, where the carrier of information is the same person holding the card and moving from one point of service to another.

The issues of confidentiality and security of patient records are a major concern for the Authorities involved and for the general public. While there are still different data protection laws in participating countries and different interpretations on the ownership of data, as well as different sensibilities to ethical issues, some broad principles can form a substantial basis on which the use of cards in healthcare are being implemented. For instance, it is now widely accepted that the decision to use a card containing personal medical information should remain with the individual citizen on a voluntary personal basis¹.

Status in participating countries

EU activities

Since 1993, the European Union has organised a concerted action amongst its Member States ("Eurocards") with the objective of harmonising the use of patient data cards for administrative, clinical and emergency applications in Europe. It is now involving partners from all European Countries (including some from East Europe). The Departments of Health of all Member States are represented in this group and in most cases have actively participated in the working groups.

Eurocards has lead to the creation of an internationally recognised group of experts that has developed by consensus common principles, data sets, guidelines and recommendation on the use of health cards in several applications (administrative cards, emergency cards, medical cards, health professional cards). In addition, the European

¹ Due to the concerns for confidentiality, the suggestion coming from the development models is to separate the content of clinical data into a basic medical data set which can be accessed in emergency situations directly by all healthcare professionals, and an extended medical data set, with the essential patient medical history, or the necessary information to access and retrieve it from remote institutions or practitioners, protected by a security mechanism. The doctor's right to access these data is demonstrated by the combined use of the professional card and of the patient's card. If professional cards are introduced, patient and professional cards become the key security mechanism within all information processing in health care. Both cards could also be access keys to telematic services. In this perspective cards and networks are not competing but synergic; especially the use of professional cards that may enhance the security of the health data in networks.

Commission, under the coordination of Eurocards, has sponsored pilot projects to test these concepts.

Two countries in Europe, namely France and Germany, have traditionally been leading the development of technology and the pilot phase. Germany has moved into nation-wide implementation. France is also planning to do so and other European countries have indicated they will follow a similar direction.

North America

For USA, in the proposed healthcare reform of President Clinton a key role was given to the patient security card for entitlement to care and for access to the networked healthcare system. Pilot projects that are currently on-going in North-America include the Health Passport in the West, the EBT (Electronic Benefit Transfer) for social assistance, the development of an emergency card for the US military personnel and community cards in Canada. In 1994 a link was established between Eurocards and Canada (Quebec).

Japan

In Japan, since the middle of 1980s, data cards systems have been developed and under practical use in many towns and cities in Japan, and a guideline to recommend a card system for healthcare, which established the interoperability in common service, was issued by MEDIS-DC in 1994. A number of pilot projects are under development, including multifunction cards to be used in metropolitan areas for both clinical and social applications.

Objectives of the sub-project

The objective of this G-7 sub project is to develop a framework for co-ordination within the G-7 countries, to meet the principles of data harmonisation and application interoperability of health cards. The action will facilitate the transition from local pilot experiments to a more enlarged co-ordinated implementation phase worldwide with interoperable cards.

Two directions have been identified as pilot areas for a global approach to the theme:

1. an international emergency card that will provide (on a voluntary basis) the essential medical information that is vital for an emergency situation, as well as an internationally harmonised administrative data set, and
2. an international professional card that will allow the secure identification of healthcare professionals when accessing medical data and network services.

Implementation plan

The first step has been the creation of a framework for exchange of information and collaboration amongst interested parties. A continuation of the European concerted action EUROCARDS (G7CARDS), funded by the European Commission, and a feasibility study have been launched at the beginning of 1996. Coordinator of the action and of the study is M. H. Doaré, Cap Sesa Informatique Hospitalière, Paris.

A major emphasis is placed upon developing technical and functional interoperability so that all cards from all participating manufacturers can be read in the different participating countries. Technical and functional interoperability of the cards must go together with the establishment of a legal and organisational framework that ensures mutual recognition of the cards and that makes the exchange of personal information protected and secure.

There are currently two proposed technical interoperability plans, from the European Union and from Japan. A North-American platform for an emergency card has also been proposed. Substantial progress has been made in a recent meeting in Atlanta (Georgia, USA - May 1996) towards the harmonisation of these technical platforms. Also an agreement of the major manufacturers has been reached, to provide a common software library to access their cards in pilot projects and as a practical tool for interoperability and for convergence to a common standard. In the same Atlanta meeting plans for the international harmonisation pilots have been discussed. Additional information on this topic, and pointers to additional information related to the G-7 projects, Healthcare Data Cards, Smart Cards and Standards may be found on the World Wide Web at URL <http://www.clinical-info.co.uk/euhci.htm> and <http://www.va.gov/card/g7card.htm>.

Status of the sub-project

Technical platforms for worldwide interoperability, presented by EU and Japan with contributions from USA and Canada, are under discussion for harmonisation. Principles and guidelines for setting up global pilots on health emergency card have been discussed. These pilots should be launched in 1997 (Canada, France, Germany, Italy and very likely Japan).

9. Government Online

NATIONAL COORDINATORS MEETING 20 DECEMBER 1996

Project 9: Government On-Line Status Report

1. Objectives

The primary objective of the G7 GOL project is to investigate the scope for a significant increase in the use of on-line technology to transform government so that, by the turn of the century, most administrative business will be conducted electronically. In particular, the project is examining three main themes: the replacement of paper-based mail by electronic mail, not only within government itself but also with the public; the provision of fully interactive, on-line services for more complex transactions, allowing the public both to obtain and provide information from a variety of locations including the home; and the development of on-line transaction processing for the support and delivery of routine services.

The GOL project is providing an opportunity for countries: to collaborate in trying to achieve the objectives of the individual administrations quicker, cheaper and more effectively; to reduce duplication of effort; and to speed up the entire development and implementation process.

To this point, the project has succeeded in promoting and publicising the concept of provision of on-line services, and facilitating the exchange of information between countries. It has also provided a vision of what can be achieved and has significantly raised awareness world-wide about policies, plans and implementation of on-line government services. However, due to a lack of resources, it is proving difficult to fulfil project objectives in a timely manner. For example, developing an objective assessment of best practice guidance for the development of on-line services, based on collective experience, requires comprehensive benchmarking and on-going monitoring of progress, both of which require resources that are not currently available.

2. Participation

The G7 GOL project has attracted the participation of administrations from 22 countries and the European Commission. The GOL project received early indications of interest from a number of non-G7 administrations and, as a result, in 1995, the project developed and approved guidelines for the participation of non-G7 organisations. This project was the first to welcome non-G7 partners, Sweden and Australia being the first non-G7 countries to join the project at the second meeting in Ottawa in May 1995. At the October '95 meeting Hungary, Israel, Malta and Switzerland joined; in February '96 South Africa joined; in June '96 Brazil, Czech Republic, Egypt and Korea joined; and at the 6th meeting in Switzerland, Portugal joined. Other countries such as Finland, Ireland and Mexico have been unable to attend meetings but have been involved in the project through receipt of papers and via email discussions.

Although each administration's participation is co-ordinated through a single contact in each country, the direct participation of all levels of government is encouraged. The City of Rome has become the first municipal level of government to participate directly in the project. The UK Local Government Management Board (LGMB) has recently expressed interest. Interest

has also been expressed by representatives of other national administrations including Austria, Belgium, Denmark, Iran, Jersey, Kuwait, Norway, New Zealand, Spain, Slovakia, and Taiwan.

To date, there is no private sector involvement in the project. The project has not proactively sought involvement by individual private sector organizations though some non-government organizations have asked for information about the project, in some cases under the assumption that the project has funds available. The project has established liaison with a number of international collaborative organisations (see 4.4 and 5.5) and is examining ways to get private sector groups involved but no specific commitments on collaboration have yet been agreed.

3. Sub-projects

The GOL project currently has twelve sub-projects, as follows:

1. **An analysis of Information Society strategies and policies:** many countries have published statements, plans and policies about their development within the Information Society.
2. **Directory services:** to share information about the development of government directories with the possibility of developing inter-linked and co-operating directories.
3. **Information sharing and re-use within a national government:** the principle of government collecting and storing commonly-used information once for use across government departments is being investigated. The issues, benefits and problems in doing this will be considered.
4. **Formal on-line transactions:** to investigate the problems faced in delivering two-way transaction services on-line, to identify good case study examples and to develop best practice guidance.
5. **Single window government/one-stop shop:** this sub-project is focusing on the integrated delivery of government services, identifying where one stop government is already in its formative stages. Issues arising from a single window approach will be addressed.
6. **Kiosks:** to exchange information about kiosk projects in participating countries such that best practices can be identified.
7. **On-line support for democracy:** all aspects of on-line services to the public in support of the democratic process will be considered, including how the citizen should be able to communicate with government.
8. **Compendium of government on-line activities:** a catalogue of initiatives of interest to the Government On-Line project will be developed, complementary to the Global Inventory Project to facilitate information sharing generally.
9. **Permits and licences:** to exchange information about applications which can be categorised as licensing, permission, approval, etc. and to develop guidelines

10. **Delivering government information electronically:** the sub-project will focus on publicising innovative ways of providing government information electronically to citizens, businesses and other government customers.
11. **Locating government information electronically:** to stimulate the development of effective mechanisms which will improve the accessibility of government information for citizens, enterprises and other government customers.
12. **Charging for services and information:** the project will investigate all aspects of charging for government information and services, including mechanisms for collecting payments.

Proposals for two further sub-projects are under development. The first will be concerned with smartcard usage and trials. The second will link together local government representatives to enable them to exchange experiences.

4. Progress and achievements of the project to date

4.1 Infrastructure Achievements

Several important achievements relate to project infrastructure and operation. While these achievements may not be externally visible in the form of G7 GOL "products", they are important in that they help ensure the orderly progress and management of the overall project and the sub-projects. These achievements include:

- The establishment of management guidelines for the sub-project initiation and operation;
- The establishment of ground rules for the participation of non-G7 organisations;
- The development of a project definition/strategy guideline; and
- The establishment, by the secretariat, of support and operating procedures that aid the smooth running of the overall project.

4.2 Communications Achievements

Communications achievements cover both internal communications (between participants, sub-project teams and the secretariat), external communications and publicity.

In the area of internal communications the project has overcome some significant obstacles to facilitate efficient and effective e-mail, file transfer and document transfer in an environment that includes many different, sometimes incompatible, software and hardware systems. In doing this the project has demonstrated the ability to use electronic services successfully which may encourage administrations to use such facilities themselves. In addition to setting an example to others, it has been found that use of the available electronic services is really the only effective way to maintain project momentum between meetings. Much valuable experience has been gained by members in overcoming the problems of electronic exchanges between administrations.

The project has also established a web site on the Internet (<http://www.open.gov.uk/govoline/golintro.htm>) as a way of keeping both project participants and non-participants informed of the project's objectives and progress. The Government On-Line web site provides links to related topics on the national web sites of participating administrations.

Demonstrations illustrating some of the sub-projects were mounted at the 1995 Halifax G7 Summit and at the Information Society and Development ministerial conference held in South Africa in May, 1996.

Numerous presentations have been made by the co-chairmen and project team members. Video-conferencing has been successfully used to link participating administrations, both for conference presentations and for the conduct of some GOL business - another illustration of the project using the technology it seeks to promote. Individual project participants have also sought to promote the project's objectives by giving presentations to smaller gatherings within their respective countries and administrations.

Logos have been developed to give the project a distinct identity, and brochures have been produced and made widely available to provide information on the project and the participants. (The brochures have been made available electronically to allow participants to make changes to reflect local/national information.)

4.3 Progress on the sub-projects

A number of sub-projects were proposed at the first GOL meeting in March 1995. These included activities that dealt with internal administration, project procedures, communications and publicity. These were subsequently de-classified as sub-projects and grouped under secretariat/project management activities. Progress on these activities is reflected above under *Project infrastructure and communications*. By the second meeting in June 1995, members had had the opportunity to review and respond to the various sub-project proposals. Contributors and leaders were identified so that work could get underway.

When the GOL project began, the co-chairmen expressed the hope that some of the sub-projects would begin to show results in 12-18 months, though it was recognised that some of the longer term activities would have 3-5 year time-scales. Given the June '95 start for the initial sub-projects, it is encouraging to see that some results are now beginning to be seen. However, in many cases, progress has been less than expected due to resource constraints. Most administrations involved in the project find that their involvement is in addition to a 100% workload, and therefore find it difficult to do more than prepare for meetings, exchange documents and reply to emails. Unless the resource problem can be overcome, the ability to achieve significant deliverables, such as case studies and best practices, will be severely impaired.

It is planned that the co-chairs will meet early in 1997 to review all the sub-projects in order to simplify the structure and ensure the objectives are clear and realisable.

With respect to the individual sub-projects, the following results are noted:

(1) Analysis of Information Society strategies and policies

Copies of strategy and policy documents have been exchanged but the analysis work has not yet been carried out due to lack of resources. There is significant interest in this sub-project as

participants would like to carry out a high level benchmarking exercise or comparison of developments in a number of countries.

(2) Directory Services

A number of administrations are developing, or have expressed interest in developing, government-wide X.500 directories. This sub-project, which is initially focused on information exchange but which may later lead to technology transfer, is focused on making available information and experiences from those working on such developments. Contacts on directory projects have been established in six administrations and additional contacts are expected over the next year. A brief summary status report was presented to the June '96 GOL meeting and a case study on the X.500 implementation in Canada has been delivered.

(3) Information sharing and re-use within a national government

The UK has produced a briefing on activities in 11 countries and a proposal for areas to be considered. Korea has taken on leadership of the sub-project since this topic is of major importance to them and their intentions for the sub-project are awaited.

(5) Formal on-line transactions

There has been considerable difficulty in scoping this sub-project. A discussion paper was developed by the UK and placed on the web. Future work will depend on comments from participants and resources available.

(6) Single window government/one-stop shop

A web site has been set up by the USA identifying examples of one-stop shops on the web. This is an excellent example of a deliverable, which has been made publicly available. The information is accessible by country (http://www.info.gov/Info/html/g7gol_country.htm) or by service (http://www.info.gov.uk/Info/html/g7gol_function.htm). Due to lack of resources it has not been possible to carry out analysis in order to develop best practice guidance on this topic.

(7) Kiosks

Considerable information about kiosk pilot projects has been exchanged. It is hoped that a resource such as a CD-ROM of illustrative examples can be produced and that some best practice guidance can be distilled from the enormous amount of experience which is available.

(8) On-line support for democracy

There are various aspects of the topic of Electronic Democracy. These include: information dissemination (making information easily and quickly available); facilitating public contact electronically with elected officials and with those who work in the public service; and increasing opportunities for public participation in the democratic processes. A demonstration of some of these aspects was mounted at the Information Society and Development conference held in South Africa in May this year. This project is of particular interest to some of the developing countries.

Some interesting papers and e-mails have been exchanged about activities in various countries and a project proposal has been developed by Sweden. Unfortunately, at this point, resources to allow this project to achieve its full potential have not been identified.

(9) Compendium of government on-line activities and interests

This sub-project aims to provide a database of GOL-related activities and interests, classified under simple categories, together with a status indicator and a contact for further information. The sub-project was initially intended to provide an indication, for internal project purposes, of initiatives in the participating administrations that could possibly contribute to GOL sub-projects, the idea being that if work was proposed on a particular topic it would be possible to get a quick reading on existing work related to that topic. However, a significant degree of interest in the results of this sub-project has now been shown by outside agencies, particularly in the developing countries.

A pilot compendium has now been established and is accessible on the World Wide Web (<http://www.info.tbs-sct.gc.ca/G7/>). The available information comprises summary descriptions, status, category of project, and contact information and is currently based on work underway in Canada, Sweden and the UK. The compendium is set up so that anyone can contribute relevant projects by completing information in an on-line template. The compendium will be extended to cover work in other administrations over the next few months, subject to availability of resources. The GOL Compendium complements the Global Inventory Project.

(10) Permits and licences

Japan is actively working on this topic and keeping participants informed. Japan has recently developed a questionnaire to gather information about activities in other countries.

Due to an overlap between this sub-project and formal transactions, they are likely to be merged as part of a review of all sub-projects.

(11) Delivering government information electronically

There has been considerable exchange of information on this topic and web addresses of important government sites which are live examples of delivering information to the public on the Internet.

(12) Locating government information electronically

Information on a number of techniques for locating government information have been exchanged, such as the use of GILS and GIFT by the US and Canada respectively, mechanisms adopted by Australia, and the use of various proprietary systems available on the web. There has not yet been agreement on topics for this subproject and no resources have yet been identified to carry out any work.

(14) Charging for services and information

Israel has drafted a questionnaire to survey participants' intentions regarding charging for on-line information and services. A report will be produced based on the findings.

4.4 Co-operation with other bodies

The GOL project has established contact with (and in some cases made presentations to) a number of international organisations including the International Council for IT in Government Administration (ICA), the Commonwealth Network of IT for Development (COMNET-IT), the Armed Forces Communications and Electronics Association (AFCEA), the OECD, the

Global Information Infrastructure Commission (GIIC), the ace2000 Forum, OECD and the World Bank.

The most recent development is collaboration with the independent publishers of a new magazine, *Electronic Government International*, launched in September 1996. Contributions from participants in the GOL project are published in addition to regular updates about the project. The publication has been very well received by all participants and many other countries. This mechanism can also be used by other G7 projects as a publicity vehicle, where relevant.

4.5 Project Recognition

On June 12th 1996, the project co-chairs were pleased to accept a special *Innovation in Electronic Government* award made to the project by the publishers of *Government Computing* magazine.

4.6 Intangible benefits

In addition to the quantifiable results achieved, a number of intangible benefits have accrued to the participants and their organisations. As a result of both the project meetings and informal exchanges of information that have taken place in the course of the work, all participants now have a better understanding of the reality of IT use in administrations around the world and a number of administrations have been motivated to deploy some of the technology (such as video conferencing) after experiencing its value during project work. Participants know that, if they are seeking information, they have a wide network of e-mail contacts who can be guaranteed to give a fast response to enquiries. The contacts established have resulted in a significant support network with participants helping each other with presentations, video conferences and general exchanges of information. Members have developed good co-operative relationships, a better understanding of IT developments in other countries, and openness that is leading to a better understanding of how the developed nations can help the developing nations through the use of IT.

5. Challenges and solutions

As was perhaps to be expected for a project with the broad scope of GOL, progress has not been achieved without experiencing some problems. Indeed, the project is currently facing a number of challenges which, if not satisfactorily addressed, will prevent meeting of all the objectives and could result in at least some of the sub-projects failing to meet their targets. The problems have been characterised under the headings *Commitment*, *Working Methods*, *Expectations and Ambitions*, *Publicity and Visibility*, and *Funding/Resourcing*. These are discussed below.

5.1 Commitment

Under the guidelines developed for managing projects, when a new sub-project is proposed, there must be some assurance that someone is willing to lead the work and that there are at least two administrations willing to participate. Thus, a degree of commitment is required before a sub-project is accepted into the GOL program of work. Often, when a sub-project is proposed, the proposer is identifying a topic on which his or her administration is already working and on which they are willing to lead, or at least participate. In some cases the commitment may be personal, on the part of the proposer, but in most cases the commitments

are made (at least initially) with organisational backing. However, in the current environment of downsizing, doing more with less, severe financial restraint, changing staff and changing priorities, the project is finding that people are under such pressure for time and resources that they are sometimes unable to follow through on a commitment. This means that the time-scale for sub-project results will inevitably slip and, in the worst case, the sub-project may not deliver the results at all.

In most cases people, having given a commitment and being interested in seeing the work progress, are keen to follow through on that commitment even though, in some cases, circumstances make it difficult or impossible to do so. This can lead to a situation where a sub-project is not able to progress because of lack of resources but where people still want to try to keep the task on the program of work. The project is then faced with a situation of having a sub-project which is supported but not progressing and which, unless funds or resources are found, is unlikely to progress.

The issue of both individual and organisational commitment with respect to the project is a difficult one. While it is reasonable to assume that participating administrations have at least some commitment to GOL and its goals, it cannot be assumed that such commitment necessarily extends to active contribution to, or participation in, the sub-projects. The extent to which any administration intends to contribute to a sub-project will normally be indicated when the sub-project is initiated though, as noted above, in the current environment such commitment can change rather suddenly.

When a sub-project is an extension of an existing in-house activity, the incremental cost (in terms of funds or resources) of the GOL commitment is much less than if the sub-project is only marginally-related to mainstream responsibilities. In addition, the direct return to participating administrations from collaboration in such sub-projects can be much greater than the immediate cost. This would indicate that the project can increase the likelihood of sustained commitment to a sub-project by involving those most directly involved in directly-related activities in their own organisations. A second factor that is at least as important in sustaining commitment is the early production of relevant, meaningful and quantifiable results.

5.2 Working methods

The issue of working methods, and particularly how to ensure that the work progresses between GOL meetings, is another difficult issue. GOL is not excluded from the familiar scenario whereby participants leave a meeting with a number of action items, get back to their offices to find a pile of more urgent tasks and then, under the pressure of organisational priorities, are unable to address the action items until just before the next meeting. Again the project faces the conflict between commitment to the GOL project, simply having too much to do with the resources available, and conflicting priorities. As a matter of routine, the secretariat can ensure that people are prompted on the action items between meetings to try to ensure that target dates are met. But it is necessary to try to find a way of helping the project participants follow through on action items when they suddenly find the anticipated resources are no longer available.

Up to this point, most of the sub-projects have been proposed as initiatives that require GOL participants to identify resources to work on the sub-project. Two other possible approaches to sub-projects have been suggested. The first of these would have the sub-project simply specify requirements, not actually do the work. The second approach, which has been used by

some of the other G7 pilot projects for demonstration purposes, is to find existing implementations or best practices and adopt those as GOL exemplary projects. (This latter technique has also been used by some countries that have established high level strategies for administrative renewal and then sought examples to illustrate the principles specified in the strategies. In these cases the strategies have come from the top down but most of the illustrative examples have been from the grass roots levels, rather than implementations that have derived from the strategy).

In refining working methods the project needs to ensure group acceptance and understanding of priorities since the priorities of the individual administrations are not always the same. Participants also need to do a better job of structuring sub-projects to avoid overlap and to define inter-project relationships. Work is currently under way to develop a taxonomy to aid in grouping the projects and to avoid overlap. It is also expected that a recently-approved sub-project to review and document national strategies and priorities will assist in determining future project priorities.

5.3 Expectations

When the project was conceived, the fact that many administrations at all levels of government were trying to achieve similar objectives was sufficient to bring people together to try to achieve these objectives collectively. By working together it was expected that many benefits, including expediting the overall rate of computer-based administrative renewal in the public sector while lowering the overall cost and avoiding duplication of effort, would be achieved. It was expected that leaders in a particular aspect of on-line government services would be able to share their experiences and, in some cases their technology, with others. There would also be a major opportunity for the developed nations to help the developing nations. These objectives are still completely realisable but fulfilment of some of the objectives may be conditional upon removing some of the constraints already mentioned.

As the project moves forward with the sub-projects it is easy to forget who the clients are in this project. Clearly, the administrations which participate directly, and which contribute to the project in the expectation of reaping some of the benefits, are clients as are the taxpayers (albeit indirectly) since they will ultimately benefit from the efficiencies gained. Other administrations, including those from the developing nations which are able to benefit from the information made available through the project, are also clients even though they may themselves not contribute directly. Lastly there is the G7 itself. The project was conceived under the G7 Information Society initiative and it must be ensure that the project continues to meet the overall objectives of that initiative (reference 7). There is a need to do more to ensure that our clients are supportive of the objectives and that value is delivered to them.

5.4 Publicity and visibility

As noted above, the project has developed a communications strategy but it has been suggested that the project needs to increase its level of visibility. Part of this need for visibility relates to client recognition and deliverables (as noted above) but there is also a need to demonstrate the tangible results of the project to a wider audience.

Currently most of the direct participants belong to national governments. From a project management standpoint it is necessary to ensure co-ordination of national participation through a single prime contact but the project also needs to ensure that all public sector

agencies are aware of the project and its objectives. Up to this point it has not proved easy to establish links to other levels of public administration. The project must be more effective in establishing appropriate contacts at the other levels of government and public administration (provinces/states, municipalities, public utilities, academia, etc) and in giving representatives from these agencies the opportunity to participate in the project.

The project participants represent many different languages and cultures but the work and the publicity material have been almost exclusively in English. While it is not believed that this is currently a problem for the project participants, the unilingual nature of the project information may inhibit some national participation. In order to make information widely accessible, it is desirable that at least some of the project documents be made available in other languages but the project itself has no resources to accomplish this.

The need for making visible project progress on a continuing basis and particularly the need to demonstrate progress to those unable to attend the meetings or to participate directly is recognised.

5.5 Funding/resourcing

Lastly, there is the issue of resourcing and funding which many of the above points touch on. The G7 Information Society projects are expected to be funded from existing resources. Clearly, in the current climate of restraint, it is not easy to identify funds or resources to undertake the GOL sub-projects but the current lack of identified funding and resources presents a significant problem. Some of the other G7 projects have involved commercial organisations in their projects from the beginning and such involvement can make a big difference to a project by making available goods and services. GOL has, to this point, avoided any action that could be taken to imply G7 and/or GOL endorsement of any commercial product or organisation and it is likely that the project would wish to continue to maintain a position of strict supplier neutrality in the future.

Up to this point, all participation and activities have been funded/resourced by project participants. Even here though there is a potential problem in that the project must try to ensure reasonably equitable division of effort if the project is to be a collective effort, rather than an initiative primarily resourced by one or two countries.

As noted above, experience has shown that some of the sub-projects would benefit from additional funding or resourcing. In some cases, a relatively small contribution, such as temporarily contracted help or the availability of a research student for a limited period, can make a big difference to the progress of a sub-project. In other cases, it may be possible to identify tasks that can only be done if someone is able to provide funding for consulting services.

It is possible that some funding could be obtained from, for instance, international agencies for tasks where the GOL sub-project objectives align with those of the agency. Both the GIIC and World Bank have been approached but it is unlikely that they can make any major resource commitment to the GOL project. Another possible resource is academia. There has already been one approach from a US college that was looking for candidate projects for graduate students to work on as term or research papers. These are avenues that need to be further explored.

While no specific project funding requirements have yet been identified, in addition to funding for specific sub-project activities, the need for infra-structure support funding should be considered. This would possibly cover publishing and promotion costs which are currently all born by the organisations supporting the chairs and secretariat. Travel costs are also a burden on each sponsoring organisation. While a minimum number of face-to-face meetings will continue to be required for the project, the use of video conferencing and e-mail conferencing can help to keep the number of meetings to an absolute minimum while still allowing the work to progress.

Experience has shown that, in trying to achieve the project objectives, a significant effort is devoted to exchanges of experience and the identification of best practices. This is currently being done in a rather informal way among members, but this means that the potential benefits of such information are not being made widely available. The availability of funds and/or resources would enable the project to provide analysis and documentation on these experiences and best practices for a much wider audience.

6. Plans for the future

In general terms, the project still aims to build on the achievements to date and to deliver some tangible results, though it is impossible to commit to exact time-scales due to the difficulty in obtaining funding and resources. The review of sub-projects to be carried out by the co-chairmen will give rise to a simplified project structure and new plans. In the meantime work on the sub-projects will continue as projected and will be subject to the regular project management reviews conducted at meetings.

The project will continue to seek active collaboration with organisations that have similar objectives to those of G7 GOL in an effort to pool resources and minimise duplication of effort. The possibility of obtaining resource support and/or funding from vendor-neutral organisations will also be investigated. Discussions have been initiated with the European Workshop for Open Systems and some industry associations.

Information on the project and its progress will continue to be promulgated to the best extent possible within available resources.

7. Summary of issues

Forecast duration of project

The original proposal for this G7 project suggested the year 2000 as a possible target end date. This has not been discussed at meetings so there is no reason to assume an earlier end date, other than if interest and resources dwindle.

Given that the project is mainly a mechanism for exchanging information, then the project should continue as long as participants find this useful. Ideally some best practice based on the experience should emerge, but this is dependent on finding other resources.

Milestones

There are 3 meetings planned for 1997: March, June/July and Oct/Nov. The sub-projects are due to be reviewed in January by the co-chairmen with a view to putting a proposal to participants for discussion at the March meeting.

Private sector participation

See section 2, 4.4 and 5.5.

Financing problems

See section 5.5. The most significant problem is to find the resources to work between meetings in order to develop project deliverables. Participants in the project do not have the time or the funding for this work. The availability of resources (or funding to procure resources) would enable the sub-projects to make progress at a significantly greater rate and to produce deliverables much earlier. This would greatly enhance the value of the information exchanges currently taking place.

The co-chairmen have approached both GIIC and the World Bank for funding, but this is unlikely to lead to significant financial contributions. We will continue to seek resource contributions from both public and private sector organizations but we also recommend that the G7 national co-ordinators seek central funding for the projects to back up commitment implied through endorsement of the projects by ministers.

Participation from third countries

See section 2.

Website address

<http://www.open.gov.uk/govoline/golintro.htm>

<i>CONTACT DETAILS</i>	
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10. Global Marketing for SME's

THE G7 PILOT PROJECT "GLOBAL MARKETPLACE FOR SMEs"

UPDATE ON THE PROJECT'S ACHIEVEMENTS.

The overall objective of the G7 Pilot Project "A Global Marketplace for SMEs" is to facilitate increased competitiveness and participation in global trade for SMEs. It provides a coherent operational framework and a plan of implementation for global co-ordination and co-operation in electronic commerce, focusing at SMEs. It is co-ordinated by Japan, the United States and the European Commission. The other G7 countries and 4 other European countries as well as the CEEC, Korea and OECD are now involved in the project.

1. General results.

Driven by the G7 Project several meetings, workshops and conferences have been organised in the course of 1995 and 1996 and include :

- 7 Meetings of the Policy Group for the international co-ordination of the project, stimulating common understanding, action at national level for example launch of a very large Japanese initiative, definition of European Electronic Commerce initiative, and electronic commerce policy definition in Germany, the Netherlands, Italy.
- 11 Workshops, Conferences and Exhibitions were organised directly by or included direct participation of DG III-F. A major global conference of the G7 Project will be held in Bonn, in April 7-9, 1997.
- An interservice group for G7 Project "Global Marketplace for SMEs", already established in mid 1995 to support at the Commission level this initiative and drive the project in Europe, meets regularly (every week).
- The European National Co-ordinators Group to ensure consultation on the progress of the project, with representatives of Italy, Germany, France, the United-Kingdom, the Netherlands, Norway, Sweden, Spain, Switzerland, Ireland, and Slovenia for CEEC.
- A European co-ordination and co-operation structure of G7 working groups has been set up at a launch workshop in April 1996. The participation to these working groups is open to industry and participation of SMEs and representative organisations of SMEs has strongly been encouraged.

Other concrete results include :

- Collaboration of European Electronic Commerce Associations has been encouraged. As a result a Europe-wide collaboration in electronic commerce, tentatively called "Electronic Commerce Europe" is scheduled to be formally launched at the Bonn Conference in April '97.
- Memorandum of Understanding on "Information Networks for SMEs Support Organisations". This MoU developed under the ICT Round Table 10 (DG XIII) will now be promoted internationally through the G7 Project.
- Memorandum of Understanding on "Open Access to Electronic commerce for European SMEs". This MoU addresses interoperability in electronic commerce and is an integral part of the activities in the G7 Pilot Project "Global Marketplace for SMEs". An international signature process is planned at the Bonn conference.

- Practical tools to support the G7 Pilot Project include the WEB Home Page, the electronic discussion groups and the G7 Pilot Project database of persons, projects and events.
- International Co-operation with Eastern and Central Europe and the Mediterranean countries: as part of the Action plan for the Information Society in the CEEC, adopted in Prague in September 1996, current European projects, including ESPRIT projects on electronic commerce and G7 testbeds and projects will be extended to countries from Eastern and Central Europe as well as Mediterranean countries.
- The Luxembourg Agreement : as many of the initiatives undertaken in 1995 and 1996 under the umbrella of the G7 Pilot Project "Global Marketplace for SMEs" showed that electronic commerce take-up in Europe would require to be supported by some specific actions and measures. Documents on the need for focused actions in Europe have been exchanged and lead to a decision to define a joint action plan (Luxembourg agreement).

2. Results in the specific themes.

The main lines of action of the Pilot Project are organised around three themes : a Global Information Network for SMEs, the business requirements of SMEs and the international testbeds and pilot projects.

Theme 1 : A Global Information Network for SMEs.

This action is providing a tool to disseminate information on the project' achievements. As a result of current activities 8 countries and some international organisations have now set up their home pages which are linked to the Japanese site, co-ordinator for this theme.

Theme 2: SMEs business requirements - legal, institutional and technical.

Working Groups have been working towards the definition of their specific goals and key actions, method of work, deliverables and links to be ensured with other organisations, projects or activities. These have been integrated in a masterplan which will be validated early next year and implemented in 1997 & 1998.

More concretely :

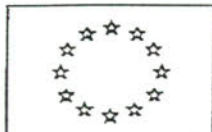
Global Information Network: This group is implementing at EU level the agreements related to the setting up and maintenance of the Web Home Pages. The Electronic Commerce Home Page based on the Ispo server is a result of this activity. at European level.

Globalisation/identification: To establish an infrastructure of names and addresses to identify electronic commerce users, an existing MoU will be expanded to further signatories and co-operation with standardisation organisations ensured.

Multi-lingual and multi-cultural issues: Recently a workshop in Sevilla has been supported. Awareness actions on the requirements generated by a global marketplace have been started and co-operation set-up between Canada and European countries and institutions. It is expected that an international multi-lingual electronic commerce pilot will be launched in 1997.

Deployment: Awareness actions have been started. The focus has been on the work of the Round Table n° 10, and on a Memorandum of Understanding on "Information Networks for SMEs Support organisations". which was announced and presented at the last EITC in November 96.

11. Maritime Information Systems



EUROPEAN COMMISSION

DIRECTORATE-GENERAL III
INDUSTRY
MARIS COORDINATION
DG III/D/5 - MARITIME INDUSTRIES

MARIS

13.12.1996

1. Objective

At the G7 Conference on the Information Society in February 1995 ministers approved 11 pilot projects to show the potential offered by Information Technologies. The implementation of the pilot projects was encouraged by the G7 Heads of State at their Summit in Halifax in June 1995. Progress in implementation is reviewed regularly. The Maritime Information Society (MARIS) is one of these 11 pilot projects. Its objective is to build a global maritime information system by setting up specific applications and to promote interconnectivity and interoperability, which will trigger a process of enhanced international cooperation to create new services on a global scale.

2. Characteristics of MARIS:

a) MARIS is a ***framework under which four sub-projects*** demonstrate the potential benefits of the information technologies and telematic applications. They cover a broad range of maritime activities.

- sub-project 1: SAFEMAR

Development of a ship reporting system for vessels resulting in the creation of a Vessel Traffic Management and Information System (VTMIS). Electronic chart projects and updating projects that integrate accurate positioning and chart data are under way in a number of countries using international standards.

- sub-project 2: MARTRANS

The setting up of a Port Logistics Information Network on the movement of cargo and vessels; tracing and tracking services for cargoes and vessels will be developed. The provision of real-time information will result in a more efficient management of the logistic chain.

- sub-project 3: MARSOURCE

Creation of a fisheries and oceans information network with the objective to preserve fish stocks and enhance the availability of aquaculture products.

• sub-project 4: MARVEL

A project for intelligent manufacturing of ships. The aim is to interlink shipyards and their suppliers in a common global network.

b) MARIS is user-driven:

Following the bottom-up approach it is industry itself which identifies its needs and priorities with regard to information technology applications. Administrations are only providing the framework.

c) MARIS is building on existing systems:

MARIS seeks to develop interlinks between existing systems in order to create a global maritime network where maritime industries can communicate with possible partners around the world. MARIS is therefore based on existing systems. New systems will only be developed where it is necessary for the creation of the global network.

d) MARIS is an open framework

in two senses:

- it aims to integrate all possible maritime players worldwide;
- apart from the 4 existing sub-projects other items could be envisaged to be included like "education/training" and the subject "maritime leisure" which is going to be discussed within the MARIS coordination on G-7 level.

e) MARIS aims at standardisation

The promotion of inter-connectivity and inter-operability should lead at least to common specifications on a global level.

3. Timetable

A timetable for the implementation of MARIS has been approved by the administrations of the G7 States and was submitted in the progress report to the Halifax summit of the G7 heads of government in June 1995:

- a stock taking exercise in 1995;
- development of prospects for further international co-operation in 1996;
- realisation of concrete results in 1997.
- presentation of results on the occasion of EXPO'98 in Lisbon.

4. Coordination/Management

The G7 pilot projects national coordinators decided in Vancouver in November 1995 that each pilot project should be organised according to its specific needs and that no common structure will be set up.

Regular MARIS coordination meetings on G7 level guarantee an adequate exchange of information on specific projects.

On a G-7 level, MARIS is structured with the EU and Canada as co-leaders and each country having both national MARIS coordinators and subproject contacts.

MARIS is structured on EU-level as follows:

- European Commission:
Project leaders in the DG's responsible for each sub-project have been nominated and are operative.
- Member States:
EU Member States were asked to nominate a responsible for each sub-project in order to allow that individual project leaders get directly into contact.
- Industry:
An appropriate industry interface has been established for MARVEL, MARSOURCE, MARTRANS and SAFEMAR.

It is planned to hold meetings of national coordinators on a semi annual basis.

5. Promotion of MARIS

MARIS needs to be promoted on a greater level to guarantee the global approach:

- A number of workshops took place in 1995 and 1996 with the aim to find new partners for cooperation (Athens for Greece, Hamburg for Germany, Genova for Italy, Yokohama for Japan, London for UK, Dublin for Ireland) in order to get the maritime industry closer together and involved in the MARIS exercise. Other seminars are envisaged for 1997, commencing with Ottawa, Canada in February 1997.
- In the context of the enlargement of MARIS to non-G-7 countries the following initiatives have taken place:
 - * MARIS was represented at the follow-up Conference on the Information Society in South Africa in May 1996 with the objective to invite especially less developed countries for participation
 - * a MARIS Conference took place in June in Malta for the enlargement to the Mediterranean
 - * another MARIS Conference was organised in September in Helsinki for the Baltic Sea Region.
- It is envisaged to make information available on internet/world wide web in 1997.

As the outcome of the Conferences and workshops, a decentralised and regional MARIS contact point has been established in Genova for the Mediterranean and is going to be set up in Helsinki for the Baltic Sea Region.

6. Participation

It was decided at the G-7 summit in Halifax in June 1995 not to restrict the pilot projects including MARIS to G-7 countries. In order to meet the requirements of Halifax it was agreed at a G7 - MARIS coordinators meeting in September 1995 in Brussels to cooperate with other non G7 - EU countries and to integrate other third countries whenever possible.

All interested maritime parties - maritime companies, ports, maritime associations, research institutes, maritime regions - are invited to participate in the sub-projects. Expressions of interest should be addressed to the national contact point or to the MARIS contact in the European Commission or in Canada (see annex).

7. Financing

There is neither a G-7 budget existing nor a budget for the creation of the Global Information Society concept. Financial means for MARIS have to be found in existing budget lines in Member States themselves, in G-7 countries and on the level of other countries which want to be involved in MARIS.

Possible financial means for projects under the MARIS umbrella on European level can be explored especially:

- 4th. R&D Framework Programme with its specific programmes, e.g.
 - * telematics applications,
 - * advanced communication technologies and services,
 - * information technologies,
 - * transport,
 - * marine science and technology,
 - * cooperation with third countries and international organizations.
- specific budget line on Information Society.
- Regional Policy Fund
- MEDAR
- PHARE/TACIS



EUROPEAN COMMISSION
DIRECTORATE-GENERAL III - INDUSTRY
MARIS COORDINATION
DG VII/D - MARITIME TRANSPORT

MARIS - Sub - project 1 : SAFEMAR**13.12.1996****Description**

Development of a ship reporting system to support the implementation of the various international conventions and resolutions (Ex.: hazardous material directive). This project will result in the creation of a Vessel Traffic Management and Information System (VTMIS), which will also include electronic chart functionalities.

Implementation/Current Status

A strategy has been developed on the EU level in a four phases approach:

- (1) preparatory phase,
- (2) start-up of projects and set-up of a management structure,
- (3) experimentation phase and integration,
- (4) demonstration phase.

The first phase ended on 31.12.1995.

Ship Reporting

As far as the ship reporting aspect of SAFEMAR is concerned, a data exchange system based on the requirements laid down by the Council Directive 93/75/EEC will be established by six Member States under the terms of a Memorandum of Understanding. This will settle the basis for an information highway on maritime safety in which the ship will be integrated. Work has already been done on the equipment design by several countries (UK, Sweden, the Netherlands, France, Germany). The equipment should provide functionalities which are based on user requirements. These functionalities are: ship to ship collision avoidance for all vessels on the high seas; vessel tracking for VTS-purposes, longrange ship reporting requirements, vessel location, others (e.g. local security, prevention of piracy, etc).

The Canadian Coast Guard in partnership with the Canadian Hydrographic Service, the shipping industry, port Authorities, Pilot Authorities and others are commencing a CDN\$ 7 million integrated Information System on Marine Navigation project (INNAV) on the St. Lawrence River.

Electronic Chart

The International Maritime Organization (IMO) has adopted performance standards for Electronic Chart Display Information Systems (ECDIS) and the International Hydrographic Organization (IHO) has now finalised S-57 edition 3

specifications which support Electronic Navigation Chart (ENC) data and updating. These specifications were developed with input from many ECDIS trials. What remains to be done before there is widespread adoption of ECDIS as legally equivalent to the paper chart is for the IMO International Electro-technical Committee (IEC) to develop technical specifications for ECDIS systems. However, these milestone decisions provides a direction and a world-wide framework upon which countries can base their ENC production activities and their regulatory carriage requirements and upon which equipment manufacturers can design ECDIS equipment. There are opportunities for projects involving the exchange of data and testing of various updating methodologies, among the G7 countries and with other countries.

Projects in the EU:

The European requirements and functionalities of electronic charts are being examined in COST 326. The results will be used to assess the inclusion of electronic charts into a comprehensive VTMS-system and to assess the possibilities of an international cooperation. The following is to be noted:

- State of the art and infrastructure requirement : a final report has been produced;
- Assessment on specific user requirements : a final report has been produced;
- Assessment on the constraints on data supply - ENC production and updating: a draft report has been produced;
- Assessment of the integration on ECDIS of information concerning a "harbour approach system", VTS and inland waterways : a draft report has been produced;
- Report on the requirements for a European network of national databases is in progress;
- Report on the European user requirements and standard for training in the use of ECDIS is in progress;
- progress is also made on the collection of results of the sea trials in the following test beds : Baltic and North Sea test beds, Electronic Chart centre in Norway, Netherlands/UK test bed;
- progress on the implementation of the Mediterranean test beds : agreement between Italy, France, Spain, Portugal and Greece;
- the research action is identifying the common European user requirements for the implementation of an Electronic Chart Display and Information system, taking into account the infrastructure, ENC production, the data supply and updating network on the different test beds and practical results evaluated. A demonstrator on the integration of ARPA and ENC displays is being developed.

Project proposed by Germany:

BAFEGIS (Baltic Sea Ferry Guidance and Information System): Sweden and Germany have agreed on a joint demonstration project based on the latest marine telematics technology, e.g. Transponders and Electronic Charts, to enhance ferry safety. The project involves two Swedish and two German ferries commuting between the ports of Warnemünde (Germany) and Trelleborg (Sweden). The objectives of the project are: improving safety on board ro-ro passenger ferries; monitoring the journey of ro-ro passenger ferries from the

shore; supporting these vessels by means of a nautical-hydrographic forecast information and immediately initiating the required rescue measures in cases of emergency.

Projects from Canada:

- Between 1991 and 1996 Canada conducted a long term Electronic Chart Pilot Project that involved installing ECDIS systems on 49 ships of various types including tankers, ferries, bulk carriers, fisheries patrol, coast guard ships and cruise liners and at 4 marine training institutes .

The project resulted in 14000 days at sea using ECDIS, 500 new users being trained and using ECDIS, and 360 ENC produced.

In parallel Canada led the international work on colours and symbols for ECDIS display and was active in the development of the feature object catalogue.

This work resulted in input that influenced standards that have been developed and upon which future projects can be based.

Canada is currently active in ECDIS backup and updating trials on the St. Lawrence River and in 1997 Canada will introduce a commercial service that support S-57 ENC and dockside ENC updating, initially on the St. Lawrence River between Quebec and Montreal, and expand eastward and westward from this area during 1997.

There are opportunities to include vessels operating between Europe and Canada in ENC data exchange and updating development projects as well as projects involving water level forecasts and the use of real-time water level information to maximize draft.

- INNAV project: this project includes the AIS project but in a longer term INNAV will also deal with cargo and other vessel information about routing etc. Initially it is focusing on Vessel Traffic control information, the communication, data base storage and display of the information.
- AIS project: this project incorporates Automatic Information Systems (AIS), sometimes called Automated Surveillance Systems, which provide ship-to-shore and ship-to-ship position information and electronic chart-type displays and vessel traffic management functions.

While the USA has not directly expressed an interest in the G-7 Electronic Charting Projects Canada has been participating with the USA on Electronic Charting Projects including a hybrid electronic chart project as a part of the San Francisco Bay project.

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL III - INDUSTRY
MARIS COORDINATION
DG VII/D - MARITIME TRANSPORT

MARIS - Sub - project 2 : MARTRANS**13.12.1996****Description**

Set up of a Port Logistics Information network for providing real-time information including tracing and tracking services on the movement of cargo and vessels. The provision of real-time information will result in a more efficient management of the logistics chain. Moreover, the attractiveness of maritime transport for shippers and forwarders will be enhanced.

Implementation/Current Status***Situation in the EU:***

Three different preparatory projects have been completed:

- LOCALE: This project is carried out by a consortium of ISL (Germany), SET (Italy), CNS (UK) and CCS (Ireland). It aims at looking at the feasibility for a generic interface allowing EDP-systems to have EDI-functionality.
- EDI Task Force and Infobase: This project carried out by Eurotransportnet (an interest group of 6 different port community systems), the port of Marseilles (France) and SET (Italy) are examining the feasibility of creating on a permanent basis an EDI Task Force which would help SME's implementing EDI. Moreover, the project also considers the development of an infobase of maritime EDI-services.
- Sectoral benefits of EDI: At present, the benefits of EDI are only known on a single company basis. However, the benefits of EDI for a sector or for a logistics chain are not yet sufficiently analyzed. The Erasmus University (the Netherlands) is doing research on these wider benefits.
- A fourth project port MODALE (MODULAR APPLICATIONS for low cost EDI) is being examined.

A video demonstration showing the potential and the benefits of MARTRANS has been developed.

- A workshop for the Mediterranean was organised on 08./09.02.1996 in Marseilles. More than 100 participants participated. Modalities for cooperation between EU-ports and ports of Mediterranean Third Countries were examined. Tunisian participation is concretely being envisaged.

- The second call for proposals of the 4th FP of the specific Transport Programme which contains a specific MARTRANS slot, was closed on 15.03.1996. One proposal was successful. A comprehensive MARTRANS-project will start in the first quarter of 1997.
- A call for tender has also been made for the design of a modular and scaleable EDI-system. This project will also start in the beginning of 1997.

Projects/proposals presented by Germany:

- DELCOM (Delivery Communication System): The DELCom proposal is aiming at the development of a system architecture providing interconnectivity and interoperability for the planning and control along intermodal transport chains including the waterborne mode. It is based on the BOBCom system architecture. BOBCom, the Baltic Open Port Communication System, an ongoing EU R&D project, is establishing a system architecture supporting interconnectivity in and between ports and between ports and hinterland transports, especially regarding the requirements of small and medium sized enterprises and ports.
- Information Network for Global Distribution of Automobiles: Comprehensive Information Highway from the Car Manufacturer's Premises to the Customer. The proposed project is to integrate planning procedures and control of intermodal transport into the logistics of procurement and distribution of car industry and trade. It will be based on the architecture of the BOBCom project.

Projects in Canada:

- Container Cargo Tracking Project - options for tracking containers
- The Canadian Centre for Marine Communications in St. John's has two projects underway. One \$2.5 million program involves Marine Geomatics - and is broad enough to cover projects related to the acquisition, processing and management of data and data products that describe the marine environment. This program could include such diverse projects as wind and sea state conditions, sea ice information, vessel traffic monitoring, oil spill tracking, fish stock assessment and fish stock movement. A key component is the integration and graphic display of the information.

Their second project involves the concept of extending the information highway offshore and creating an information seaway. This also has much potential for MARIS because it is expected that there will be a virtual explosion in the use of satellite communication in the marine industry and with the need to receive and transmit chart information, safety information, AIS and Vessel Traffic Information, ship status information, routing / scheduling information, cargo information and other data. There will also be a need for complex shipboard communication interfaces and the goal of this \$3 million project is to make the routing of the data as transparent to the mariner as the routing of a telephone message is to a user.

- Canadian companies, with expertise in telecommunications, are also involved in projects such as the standard ship safety record, shipboard platform and accessible distributed data base project. This \$4 million project, which is funded by the US government under the ARPA

MARITECH program, has a goal of developing a standard ship safety record which would record information now found on "notice of arrival" reports as well as vessel certificate information, inspection histories, non-compliance records, crew information, maintenance records and similar data. This will allow Flag and Port States to identify vessels who do not comply and assign inspection resources accordingly.

To support this, a remotely accessible integrated Shipboard information technology platform is required. This platform incorporates a distributed local area network integrating shipboard sub-systems and uses wireless telecommunications to connect to shore based systems. This system will be available early in 1997 for installation on a tanker for a follow-on ARPA project.

Project in Japan:

Maritime Information Gateway Server & Networking in terms of the Contents "Maritime Intranet": The project aims to contribute to the formation of advanced maritime information society by establishing seamless global communications between ships and onshore with joint participation by government and private organizations as an experimental international project.

The project realizes an infrastructure for advanced information communications systems which is totally open and highly extensive without influenced by type of users, hardwares and software. This project contributes to preservation of marine environment, safety and efficiency of maritime operations by supporting the users' decision making. The project is supposed to be finished by the end of 1998 and is open for the cooperation with maritime industries in other countries.

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL III - INDUSTRY
MARIS COORDINATION
DG XIV/D - STRUCTURES AND AREAS
DEPENDENT ON FISHERIES

MARIS - Sub - project 3 : MARSOURCE**13.12.1996****Description**

Creation of a fisheries and oceans information network linking existing data bases containing information on fisheries, oceanography and scientific research.

Aim:

- improved preservation of fish stocks,
- adaptation of both fishing capacities to available resources and of production of fishery and aquaculture products to the needs of the market.

The project envisages in addition to improve the transparency in the fisheries sector at world level to the benefit of all public bodies and private operators concerned.

Implementation/Current Status***Situation in the EU:***

The Directorate General for Fisheries of the European Commission is developing the MARSOURCE initiative by involving the use of external Webserver presenting European related fisheries and ocean information. The project will be operational in the first half year of 1997. In the initial phase continuously updated data on the following will be provided via Internet: resources, markets, trade, fleet, aquaculture and research. Furthermore, the project will also refer to, amongst others, the servers of other international organisations and of Member States or regions concerned with fisheries. The system will work as an umbrella thereby giving an impetus to enterprises in the fishing sector to use telecommunication systems for sharing information about fisheries in different areas. The European Commission is financing this project.

First preliminary discussions concerning a possible participation of non EU countries (e.g. of Japan and the United States) were launched. A basic agreement with the International Council for the Exploration of the Sea (ICES) on a participation was relaised. In several workshops the MARSOURCE initiative was presented to the fishing industry and various bodies of Member States and third countries.

Furthermore, the European Commission has promoted the use of electronic trade systems in the fishery sectors. Several projects on the level of member States of the EU were developed. A link to the MARSOURCE project of the European Commission could possibly be established at a later stage.

The MARSOURCE initiative and the advantages of electronic trade systems in fisheries will be presented by a video which will be produced in the beginning of 1997.

Situation in Canada:

Canada has established a National Hydroacoustic Program, with a goal of improving the measurement and estimation of fish stocks through the use of hydroacoustics. This goal is pursued through seven inter-related projects. These projects work together to advance the technology, leverage and coordinate national and international resources, and create an open forum for communication and discussion regarding the sustainable development of the world's marine resources. In all cases, the project teams work extensively with Canadian industry and universities and with experts in other countries, and actively seek additional partners.

Following is a brief description of each of the seven projects.

- Survey Design Project: This project evaluates various ways to use trawl and acoustic platforms - separately and together - to generate the most accurate data on fish abundance and distribution. Results to date indicate a strong correlation between trawl and acoustic data. They also reveal that platform characteristics are an important consideration.
- Data Analysis Tool: Hydroacoustic data is currently available from several sources in various formats designed for a range of uses. This project will develop a common, versatile, open data analysis tool able to handle diverse acoustic information from the initial databases to the final production of fish biomass estimates. The team is developing a standard format to be implemented by leading industry equipment manufacturers. Once the standard format has been decided, new information will be acquired under this standard and, when necessary, old sets will be translated into the new format.
- Species Identification Program (SIP): Developing the capability to identify individual species and size distribution in multi-species aggregations by the acoustic signals they return is a significant technological challenge. The fact that fish schools are in constant motion and that vessel avoidance compounds this movement makes the challenge even more demanding. Overcoming these obstacles is the task of the SIP team. The team is currently moving the project from empirical analysis to theoretically defined quantified analysis. The work being done by the SIP team is moving the program to the forefront of species identification and classification.
- New Technologies: This project has two components. The first involves determining if a bottom-mounted sonar can effectively monitor fish-school echoes out to 20 kilometres. Scientists know that sonar can detect fish from distances of several kilometres but, due to factors such as vessel avoidance, current methods using standard sonars severely undersample fish stocks. The second component addresses the challenge of using sonar to map fish stocks in near-shore water. The test involves short-range, high-frequency sonar to image herring on the east coast in waters 3 to 4 metres in depth. The team works closely with local fishers in developing the project and collecting the data. In both parts of the project, companies are developing

the necessary fixed acoustic systems and this equipment will be deployed at selected sites for evaluation. The project addresses the temporal and spatial aspects of moving versus bottom-mounted equipment, and also takes into consideration the seasonal movement of fish schools.

- Fishing Industry Collaboration: This project capitalizes on a strong team approach between DFO and fishers. In this important collaborative effort, fishers are using their own vessels in their day-to-day operations and DFO-supplied equipment to collect data that fisheries managers will use to estimate stock size and biomass. The Chaleur Bay herring fleet on the east coast is the first to participate. The project team hopes to develop similar partnerships in other Atlantic, Pacific and Arctic fisheries.
- International Collaboration and Leverage: This project has the critical job of developing international partnerships. Partnerships are crucial to collecting data, advancing the technology, formulating national and international solutions, and garnering the human and financial resources necessary to build on each others' successes. The team is establishing a hydroacoustics network of interested parties which will allow researchers to assess opportunities and develop matches between Canadian and international activities for the development of projects and scientific cooperation.
- Training and Communication: This team informs partners, colleagues, government departments and others about the National Hydroacoustics Program through printed matter, video and electronic means of communication. It also provides training for clients, partners and others through a hydroacoustics course that is delivered not only in conventional classrooms but also in a distributed delivery format. Utilization of the Internet is being incorporated to provide instant access to all projects and as a discussion and information dissemination forum for other researchers and the public.

Status

On an international forum the Hydroacoustics program project on Data Analysis Tool has received recognition by the ICES Working Group at their April 1996 meeting at the Woods Hole Institute in the United States.

In addition in co-ordination with OECD this program is collaboratively participating with EU members. The IEA Executive Committee has held 2 meetings in 1996 one in Paris, France in February and the second in St. John's, Newfoundland in August. This initiative is establishing a program addressing research which recognises that energy efficiency in fish harvesting operation is of vital importance to sustainable and economically viable fisheries on a global scale.

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL III - INDUSTRY
MARIS COORDINATION
DG III/D/5 - MARITIME INDUSTRIES

MARIS - Sub - project 4: MARVEL**13.12.1996****Description**

MARVEL represents a user oriented project for intelligent manufacturing of ships. It will create new global information highways for maritime data used in the shipmanufacturing process interlinking shipyards and their main partners (e.g.: suppliers, classification societies, shipowners, research institutes) in a common global network. MARVEL builds on existing Information Technology based systems already applied in the shipbuilding industry und tries to interconnect them on a global level into a "virtual enterprise". It will make trans-national and intercontinental connection easier in an environment where there is increased out-sourcing of manufacturing processes, work sharing between different producers and reliance on world-wide equipment supply.

The use of information systems will enable shipyards being more flexible when making offers and even for new types of ships. They could better take into account customer needs and would be more precise with regard to design, price and delivery. This could attract new customer groups which are at present using more traditional transport means.

Implementation / Current Status***Situation on EU level:***

In a first stage terms of reference had been worked out in cooperation with industry.

Detailed specifications of user requirements for Information Technologies are now going to be developed by the maritime industries involved in separate projects. It will be ensured that projects are in principle open to others and that results lead to common application standards.

In a further step application examples will be established to test and demonstrate the concepts.

Industry in the EU created already three consortia:

- MARVEL OUS (Maritime Virtual Enterprise Linkages - Open User Syndicate; approved under the ESPRIT programme of the EU) as a kind of umbrella consortium is a User Group Reference Project focussed on the specification and harmonization of end-user needs for advanced

information and communication technology. This will be achieved by the analysis of relevant company internal and external process chains and a respective evaluation of implemented, available and developing IT and CT technologies. The outcome will trigger standardization and an increasing use of available technology. The project will further encourage new R&D activities for the needs of the maritime industry.

Special Interest Groups (SIG's), established in the framework of the MARVEL OUS project for relevant technical topics, will ensure the distribution and discussion of project results achieved beyond the original project consortia. Global discussions and cooperation in this context are anticipated to achieve better coordination of parallel activities.

- The objective of the SEASPRITE project - approved under the ESPRIT programme of the EU - is to create, implement, test and evaluate an architecture to enable the management, monitoring and transfer of ship hull data throughout the ship life cycle; from e.g. tendering, initial conceptual design, plan appraisal, stability and loading analysis, detailed design, production, operation and repair. The data to be managed will include the hull definition, steel structure, internal arrangements and compartmentation, space usage, loading, and hull structural survey results. This product data will be supported by data representing work flow, quality and project information. SEASPRITE will demonstrate its application in a number of business scenarios.
- The goal of EDIMAR - under consideration within the ESPRIT programme of the EU - is to create, implement, test and evaluate an EDI based communication infrastructure between the various partners involved in the ship production process. The infrastructure is to automate ordering, delivery, invoicing and payment process of ship mechanical systems and equipment as well as for supporting the design refinement process which is a intermediary activity between ordering and delivery for such make to order products.

A MARVEL video has been produced in the meantime.

In a seminar on electronic communication in shipbuilding organised by the US Office of Naval Research in London in October 1996 a number of similarities could be identified between European and American projects. It was agreed to help bringing together both industries to create joint consortia.

Situation in the US:

US projects within the MARITECH programme with relations to the MARVEL project:

- Integrated Product and Process Data Environment to Revolutionize Ship Design and Bid Process: Objective = establish the electronic information framework for dispersed organisations to collaborate and respond rapidly to customer inquiries with competitive bids (cost and schedule); facilitate cooperative virtual enterprises.
- National Shipbuilding Information Infrastructure to Support Ship Construction: Objective = reduce ship construction time and cost by

developing a shiyard-wide electronic information framework and refining operations to optimize its use

- STEP-Ship Product Model: Objective = exchange product model data easily, quickly, cost-effectively and reliably between different shipbuilding information systems without loss of intelligence; acceptable international standard for exchanging product models
- Digital Product Catalogs: Objective = develop a nationally agreed-upon method for suppliers to provide electronically formatted product data to shipbuilders; facilitate shipyard and supplier relations and accelerate the Design Process
- Ship Life-cycle Support Information Infrastructure: Objective = develop an information infrastructure that permits shipyards and ship owners/operators to monitor ship performance continuously; benefit owners/operators and offer post-delivery revenue for shipbuilders.

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