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Esprit Information Exchange System

iesnews

Issue No 8, February 1987

How often do we seek for information which is in the public domain, where we know it is available and yet is difficult to obtain because it is usually dispersed, is not up-to-date or even the appropriate source and contact point are not known.

Within programs such as ESPRIT, information not only exists, but is an important element in the strategic objectives of the program to achieve cooperation between and among the Community and European researchers. The problem lies in making this information available, accessible through effective means and as up-to-date as possible. ESPRIT participants and people in general have often requested that the flow of information regarding all aspects of the program is improved.

IES Data Collections

A part of ESPRIT information dissemination activities

Information dissemination in ESPRIT

The CEC ESPRIT management has undertaken various ways to keep the large, multilingual European IT community informed. Together with press releases and announcements in Official Journals, thousands of information packages were mailed to those expressing interest. Program brochures and project synopses were printed and distributed; participation in lectures and seminars provided program background and project developments to various interested groups.

These are common and effective means of information dissemination and will continue with additional publications, such as IES News. These efforts, however, do not stop there. To provide a mechanism for more dynamic information, distribution, electronic means were explored and utilised.

With the capability of the EuroKom electronic mail and conferencing system to provide bulletin boards, new conferences

LATE NEWS

Finnish Network inaugurated

EasyNet, operated jointly by the finnish PTT and Sanoma Corp., is available generally to the public since February 12, 1987.

CD-ROM Workshop

Some 50 persons participated at the workshop organised jointly by DG XIII and Euripa in Luxembourg, Feb. 12-13 where the lastest developments and market potentials were discussed.

Questionnaire on International Public Data Networks

A joint questionnaire on a wide range of PDN aspects has been circulated by Eusidic and Intug. If you have not received a copy, these are available from the Eusidic Secretariat, PO Box 439, London W 4 1UJ. Your help in assisting network providers and users to assess services will be appreciated.

LATE NEWS

Electronic Mail: a Code of Practice

The lastest in Eusidic's Codes of Pratice deals with Electronic Mail. Aspects of particular interest are accessing mailboxes on behalf of colleagues, junk mail, security and confidentiality and liability.

Portugese Network Uses Increase

Telepac, which started operation in early 1985 and is available all over Portugal with access via X-25 as well as by dial-up, had more than 700 regular users by the end of 1986 and forecasts are for this number to double by the end of 1987. Videotex will be available at the end of the present year. The services are operated by Transdata, set up by the Portugese PTT.

were launched. One of these provides information to EuroKom subscribers regarding activities and announcements from the European Institutions (Commission, Parliament, Council) relating to the fields of information technologies. Through this, regular users of EuroKom can obtain advance notice on new programs in preparation for call for proposals, availability of publications, key European Parliament discussions, decisions from the Council of Ministers and so on. A new conference on Standards provides information on the activities for the development of European Norms in the field of IT. Announcements of important conferences worldwide in different areas of IT are given in Special Conferences in EuroKom and are updated monthly, by courtesy of Elsevier Scientific Publications. New moderated news conferences are contemplated, which relate directly to research activities. A conference with news on technological developments in Japan is under preparation.

The unique element of using a system such as EuroKom as an information medium is that a reader/user can investigate further an issue of interest by responding to the news notice and seeking advice from the conference coordinator or other users of the service.

EuroKom also serves as an alternative means of communication to the telephone and telex. The ESPRIT Enquiry desk handles questions directly related to the program, for which the contact person ist not known to the enquirer. The desk operator searches for the answer and guarantees the EuroKom user a response within 36 hours.

The IES Data Collections

Beyond the news type and the information in printed form, reference

A part of ESPRIT information dissemination activities

data are always essential in any search for full information. This type of data has often been requested. To satisfy this demand, data were identified and structured to respond to the following questions:

- What are other ongoing R&D projects in IT. And how do I get in touch with their participants?
- How can I find, if a person with whom I wish to communicate, can be contacted through an electronic mail system and which one?
- How can I identify research organisations in Europe which offer specific services through facilities?

A service to collect, encode and provide this type of data was defined with the following considerations:

- The information should be made available publicly via Public Switched Data Networks (PSDN) and a well-supported host.
- To justify the effort, the information should go beyond ESPRIT program boundaries and encompass at the very minimum all public R&D on ITin Europe.
- Data Collections should be made through organisations which already collect this type of data for their purpose; the data should also depend on the same organisations providing their updated collections.
- Data structures should be simple and at the cost of redundancy, offer simplicity in updating, accessing and searching.

The ECHO Host in Luxembourg was selected to implement the database and IEGI (Institut Européen pour la Gestion de l'Information), as part of ESPRIT/IES, to do the collection, coordination, reformating, data entry, documentation and updating. Work started in May 1986 and the service was named **IES DATA COLLECTIONS.**

In parallel, the European Association of Academic Networks (RARE) had identified the need for information sources development. To facilitate the work of the collection, but also to provide a mechanism to the upstarting RARE to satisfy one of its requirements, the service was discussed at the RARE workshop in Copenhagen.

It was agreed that RARE participants will provide input and feedback regarding future evolution of this service.

The Service was launched and demonstrated successfully during the ESPRIT Conference last September. It consists of three Data Collections:

1. People in Electronic Mail

This Data Collection serves as a directory of persons in different electronic mail systems and each record contains the name of person, affiliation, address, electronic mail system, system domain, electronic name representation. Often, for a given site, the electronic mail address of a postmaster is given. Through him other people, users of that site, can be reached. There are currently about 3.000 records contributed by EuroKom, QZ-KOM, CERN and the UNIX/EUNET network. Additional data are expected from the EAN hosts (academic sites using the University of British Columbia EAN software), JANETnetwork and various centres from the Netherlands, Belgium, Denmark and France. The EARN network

has also promised to provide postmasters' electronic addresses.

During the EUREKA/COSINE definition workshop in Brussels last November, it was agreed by the appropriate work group that a centralised directory of this type will be a useful tool until standards are available for distributed X-400 related electronic mail directories.

2. Publicly-funded IT Research Projects

In this collection, the user will find reference information to R&D projects ongoing in Europe at the moment in the field of IT. The file includes primarily projects from European Community programs such as ESPRIT, RACE, COST 11, DOCDEL, EUROTRA, MAP, etc. However, national programs have also contributed information, thereby allowing the interested researcher to identify initiatives which are complementary or parallel to this interest and establish contact with the organisation responsible for the project. The information given is: project title, project description, program name, prime contractor, project contact person and address. There are about 500 projects indicated and additional data have been promised from Germany, Greece, Ireland, Holland and Belgium.

3. Sites and Facilities

The third Data Collection was identified primarily by the RARE community. The purpose here was to create an inventory of organisations in Europe which offer specific computer services to their local communities and which are or could be part of a network with the potential to become nodes to a wider European network. The present record structure includes site name and address, contact points, facilities description and services offered. There are approximately 1.000 records at present, primarily from the UK and Germany, with more promised from Holland, Denmark, Ireland and France.

A part of ESPRIT information dissemination activities

How to Access this Information

All three Data Collections are mounted on the ECHO Host in Luxembourg, which uses a Siemens mainframe and the GRIPS database management system. The user can access this host with any asynchronous telecommunications terminal or a personal computer. Connection can be made through national X-25 Packet Switched Networks, using the NUA of ECHO which is: 270448112.
Once connected, users need to type the three letters IES, which is the public password and which provides menus with further information about accessing the three Data Collections. Potential users may wish to obtain a free short Users' Guide for the system by calling the IES Help Line (+352-453030). Useful search commands are explained in this document.

The Future of this Service

European Cooperative Research Programs have been steadily overcoming national barriers. Researchers, but also research managers and public administrations, need to have up-to-date information on research programs at their definition phase and during their implementation. This is useful in order to achieve maximum efficiency by cooperation and avoidance of duplication. It is, however, equally important in order to associate individual, organisational or national priorities with such initiatives and allow research teams to be in a better position to participate.

The IES Data Collections can, in this respect, be a very useful preliminary effort which may evolve into a useful and much needed capability.

ESPRIT : *European Strategic Program for Research and Development in Information Technologies.*
RACE : *Research into Advance Communications to Europe.*
COST11 : *European Cooperative Program in the field of teleinformatics.*
DOCDEL : *Industrial Development Program for Electronic Publishing and Delivery Systems.*
EUROTRA : *Program in linquistics and machine translation.*
MAP : *Multi Annual Program in the field of Data Processing.*

Commitee Support System

A facility for text and message transfer across national boundaries

1. What is CSS?

CSS was developed by a consortium of European manufacturers through funding by the Commission to provide a low-cost method to transfer computer messages and documents throughout the world.

The project resulted from the need of individuals working in small or large groups with common interests to transmit, fetch and process documents between all or selected members at different locations. CSS can be viewed as one of the smallest, most practical and useful universally applicable electronic offices based on the new international standards developed by ISO und CCITT.

The CSS development phase has now been completed and pilot use is in progress between European locations, including Brussels, Luxembourg, Berlin, London, Geneva, etc. Some Commission-supported specialist user groups are preparing to adopt CSS as an economic, overall solution to facilitate their work, and some national PTTs are testing CSS with their public Teletex and Videotex services. Provision has also been made for CSS to meet the (tele)communication needs of Community initiatives such as ESPRIT-IES and ESPRIT-LAN, and it is therefore a tailor-made tool for the type of R&D community that comprises ESPRIT.

CSS is a software package that exists in three variants:

a) the **original CSS** developed under contract from the European Commission;

b) **CSS Runner,** a registered name for commercialised implementations of the original CSS architecture and only as yet adopted by ICL Ltd for their equipment;

c) **CSS Poem** is the name given (not yet registered) to the version of CSS commercialised by the software houses Teles and Isoft in Germany.

2. CSS Functionality

The basic version of the CSS Software package will provide the potential user with the following facilities:

a) the preparation, handling and storage of documents in all European languages in standardised formats. (CSS will accomodate the 44 European languages covered by ISO standards on character sets and codings);

b) the creation and editing of multilingual documents, on a vast range of equipment, including even personal computers with limited display ability;

c) sending and receipt of documents through public networks, plus the ability to respond automatically to remote document requests;

d) the preservation of a full document repertoire across networks in open communication mode, allowing the use of older or more restricted equipment without degradation of messages or documents in transit and permitting conversions to be made in required forms (e.g. word processing, etc.);

e) normal security of access, including closed-conference protection;

f) access to, and downloading of, data from databases accessible using ordinary teletype terminals;

g) a modular package which is integratable with other software packages, e.g. existing commercial editors and word-processing software through standardised interfaces, allowing low-cost modifications, upgrading and porting.

CSS Runner and CSS Poem, being essentially commercialised versions of the above basic CSS package, vary primarily in processing and editing speed, the storage capacity needed and ability to handle more advanced mixed-mode capability.

A standardised, low-cost solution

CSS uses international standards in applying the principle of open communication to provide an international low-cost solution to the problem of text and message transfer in a multivendor environment. The total relation between CSS and standards is complex and falls into three quite different and rapidly developing areas in standardisation related to:

a) the ISO/OSI communication standards
b) the MHS/X-430 document ex-

change recommendations/standards

c) ISO standards and CCITT Recommendations on character repertoires, control functions/codings.

CSS will also offer the user the possibility of ascertaining conformant operability of his CSS through an online software package transmitting best scenarios running on at least one CSS site.

3. Who can use CSS (System Information)

For generating and visualising text and messages in one language: the original package written in "C" was developed on an ICL Perq for use with UNIX (QNX for micros without UNIX). Outside the CEC controlled development, CSS has been ported onto:

ECRICSSON PC Model 1030
IBM Model 5150
IBM XT Model 5160
IBM AT Model 5170
ICL Model 36
ICL Model 46
ITT Xtra
NCR PC Model 41
Olivetti PC M 24
Panasonic PC 710
(Senior Partner)
Philips Model 3100
Siemens PCD
Sperry Model E
Triumph Adler PC 1700

The minimum configuration required for a PC would be:

a 10 Mbyte fixed disc, one floppy disc drive, 640 Kbyte memory, QNX operating system (a UNIX look-alike for QUANTUM Software), a hardware package (varying from machine to machine) CSS Software package and CSS Documentation.

For multiterminal, multiusage: In this case more computing power will naturally be required and CSS has been ported onto serveral computers: the DEC VAX, the ICL PERQ and more recently ICL DRS 300 as well as IBM-AT compatibles.

For Multi-Latin Greek and multiterminal users: Currently, only one computer, the ICL PERQ is suitable but more will become available.

Using PTT Packet-Switched Services: The CSS communications facilities depend on the PTT X-25 Packet Switched Data Network (PSDN) to transfer messages and documents. Two sorts of connections may be utilised:

- "packet-mode" where the workstation handles the X-25 protocol directly,
- "character-mode" where the work station acts as a Teletype communication to interface to an internal PAD connected to the X-25 PSDN.

Potential users would need to apply to their local PTT to obtain an X-25 connection.

Availability, Costs and Contacts

Further details on the CSS architectural definition, general characteristics, can be obtained from the CSS Launch Team -
Michel HETTO
ICL European Institutions
21 bd Gd Duchesse Charlotte
L-1331 LUXEMBOURG
Tel.: 3 52 44 - 3 03 21

Ken THOMPSON
CEC
200, rue de la Loi
J37 4/33
B-1040 BRUSSELS
Tel.: 32-2-235 1270

i. CSS

The CSS software package, being the result of a Commission project and intended as a basis upon which to build commercialised versions, is modular and provides both binary and source code. The maximum price for distribution is limited to 200 ECU for the software code and 20 ECU for the documentation. It could therefore be economically and technically possible for prospective users with sufficient expertise to port CSS onto their own machines if not already included in the above list. The extent of the task, however, should not be underestimated (2-3 man-months).

Copies and information are obtainable from:

Mr. Hugh Bonfield
Dorpstraat 140
B-3061 Leefdaal
Tel.: 32-2-767 6981

ii. CSS Runner

The CSS Runner is registered for commercialised versions of CSS-Software. Currently ICL have adopted the name for CSS on ICL equipment (PC, PERQ, DRS 300). The price of the commercialised versions is not controlled. Further information may be obtained from:
Mr. Bruno Tardy
ICL European Institutions
375 Avenue Louise (7th floor)
B-1050 BRUSSELS
Tel.: 32-2-648 6663

iii. CSS Poem

The CSS Poem is currently used (but not registered) by the companies Teles and Isoft in Germany for their commercialised versions. They have implemented the package (available in binary code) on many micro and larger computers. Information can be obtained from:
Mr. Jörg Hahn
Teles ISOFT GmbH
Ernst Reuter-Platz 3-25
D-1000 BERLIN 10
Tel.: 49-30-31 77 45 / 31 76 35

Earn and Rare: Complements or Rivals

There has been much discussion about whether RARE and EARN are in competition or whether they complement each other, whether there is a need and/or future in Europe for both. It is therefore timely, that a critical examination be made of the role and functions of these two much talked about entities.

Firstly, definitions: RARE, the Associated Networks for European Research (Réseaux Associés pour la Recherche Européenne), is not a network, but an organisation of national research network (for a detailed description see IES NEWS no 4, pg 10). It is dedicated to three principal objectives, the encouragement of

- ISO networking within the academic and research community
- the interconnection of existing networks
- the migration of existing networks to the use of ISO protocols.

EARN (the European Academic Research Network) on the other hand is a network giving service to the academic community in Europe, but is not concerned with research and development of the technology used, as long as it provides a service to its users.

Prima faciae the two are thus complementary: EARN being the pragmatic service provider of today and RARE looking to the future by urging Europe towards a single set of network standards. Furthermore, EARN is not greatly concerned with RARE's primary aim of full European network interconnectivity, whilst RARE has only a minor interest in the provision of a physical network.

The reality is not quite as simple. EARN today is a very large network of some 350 computers of different manufacturers, it carries a vast volume of traffic, it is cheap to the user, it is international and it is growing, but it certainly does not operate using ISO protocols. RARE on the face of it has an uphill struggle: there is very little current ISO networking in Europe or indeed elsewhere and the prospects for an early change to ISO protocols appear not to good to current EARN users. Because of its popularity and growing use, EARN may well act as a brake on the installation of ISO network methods. The main and irrefutable argument of RARE is that it is only by adoption a full ISO working that high-quality servies can be assured for all types of computers.

What it boils down to is the age-old conflict of whether a service exists for its users of the users for the service: here there is the additional consideration that not all potential users could connect to EARN and be certain of high-quality service now, whereas waiting for the full implementation of ISO protocols would give all potential users the same satisfactory usage. The question then, is really again one of when can RARE provide the needed infrastructure and impetus to reach this end; will EARN by that time have become so entrenched and with so many ad-hoc solutions to problems arising, that it will prove difficult to be superceded.

EARN had a head start and made use of proprietary protocols because these were available and because the hardware and software were already in place on many of the computer installations forming the network and all that was required was the provision of leased lines and modems. What is more, some of the protocols had already been ported to other proprietary hardware. The network could also grow in a piecemeal manner, although again practice showed that some form of network management was required to keep routing tables in order, to ensure optimal placement of new lines and to provide 24-hour service at key sites, once there were more than 100 participating sites. In retrospect, other technologies would not have allowed of such a fast start up and growth, been as cheap for the users or have been available for the most popular proprietary computers. A network based on public X-25 services would have been an order of magnitude more expensive than leased lines because of the high PTT tariff charges, and a private X-25 based network would have required much more effort, and hence time for providing service. Worse, had a private X-25 system been selected, the absence of adequate protocols other than those of e.g. the UK Coloured Book (released at about that time) would have caused additional costs and more importantly, delays.

It is worth while stressing that PTT tariffs are an area where both EARN and RARE have much cause for concern. The costs of the current traffic handled by EARN could certainly not be financed. As-

suming EARN migration to public networks once RARE has shown the way, than it might well be that the current estimates of a tenfold increase in traffic may be severely out because of the restriction caused by current X-25 tariffs: these are adjusted to low-volume transaction traffic and not to the high-volume bulk traffic which will be generated by research usage (and other applications).

The PTTs claim that their current X-25 services are not very profitable: many new services show this characteristic in their early days, but if high costs frighten away potential users then profitability will always stay low. Here it would be tragic, if costs or traffic would be the cause of preventing communication across Europe.

The success of EARN varied from country to country: the FRG greeted the availability with enthusiasm (DFN, the German Academic Research Network was established only later), whilst in the UK, the existence of JANET, the Joint Academic Network, resulted in a less favourable reception. Most other European countries accepted the benefits of EARN to a greater or lesser degree.

The management of EARN, which is incorporated under French law, is vested in an elected Board of Directors, one for each participating country. Because of the use of leased lines, licences have had to be obtained from each PTT involved. The present position is that as a consequence of CEPT intervention, licences will probably expire at the end of 1987, by when CEPT expects EARN to have migrated to the public networks and ISO protocols. There is also a CEPT recommendation for imposing a volume charge on traffic.

In order to achieve this migration, EARN has commenced activities in this direction: as a first step an experiment has been instituted between eight international EARN centres using an X-400 system. Results are expected by the end of 1986. If positive, further work will be initiated and plans are already in hand to add the ISO file transfer protocol FTAM and the CCITT interactive protocols known as "triple X". There are some reservations about the feasibility of migrating to the ISO protocol by the end of 1987, since these are still not fully tested under severe conditions and a year's delay may possibly arise. This is because the current experiments involve only one type of proprietary computing equipment operating under the identical operating system. Tests with other products will have to be conducted and concluded satisfactorily first.

Earn and Rare: Complements or Rivals

Another aspect which will require careful investigation is the capacity of the public networks and international lines: PTTs have not been too forthcoming with these data and there have been some known problems. There are suggestions that the current expectation is a transport rate of no more than 2K bits per second on any connection. Against this the currently used 9.6 K leased lines are becoming saturated and the use of 48 K lines is probable in the near future. It is very difficult to see how the public networks can absorb the current traffic, let alone that if the band widths are increased. Possibly EARN may try to continue leased line usage even after migration to ISO protocols.

It must be stressed that EARN is strictly for noncommercial use: research groups of commercial companies may join as "associate" members, but these may not communicate with other associate members and usage must be strictly noncommercial.

EARN is connected to many other networks and gateways exist or are planned to many national research networks.

RARE has a different history. It is worth noting that there was an early attempt in 1983 for a Commission supported move, known as "ZANDER" initiative on European Harmonisation activities (1) on academic cooperation in networking, with emphasis on harmonisation of standards. Whilst there was interest shown by manufacturers, academic interest ceased when funding ended. A further Commission initiative resulted in the May 1985 meeting which laid the foundations for RARE with the aims listed at the beginning of this note. At the same time working parties were established in eight areas:

- setting up a network association (resulting in the formal establishment of RARE)
- liaison with CEPT
- message handling
- file transfer

1) in recognition of Prof. Zander's leading role at the Hahn-Meitner Institute in Berlin

– virtual terminals
– X-25
– network operation
– documentation and directories.

Since then, much progress has been made (the two annual meetings so far and the formal setting up of RARE have been described in previous issues of this newsletter). It is however appropriate to stress that the Copenhagen meeting last year showed a general support for the concept of RARE and the certainty that most, if not all European countries would become members. CEPT too has indicated its willingness to cooperate with RARE.

In the recent past, there have been discussions with the Commission concerning a number of projects aimed at the provision of an ISO network infrastructure. Such activities should help to maintain the momentum of RARE and increase contacts between participants.

The aims of RARE are long term und will therefore not be achieved tomorrow: they are however of overriding importance in an European network development. Much work remains to be done in developing and testing the protocols, and the availability of commercial products at present is also limited. Far more important is that the setting up of RARE at this stage has given it the opportunity to influence both manufacturers and network providers to make available products which will interconnect and are suitable for the academic community. Thus much of the RARE activity is concerned with the communications standards which need augmenting with "functional standards" to ensure that the products interwork. Indications are that this approach will be successful.

It must be emphasised that RARE has no intention of setting up or operating a new overlay network. This, in RARE's view is the task of the PTTs. RARE does have the obligation to persuade the PTTs to provide networks of the quality required and at a cost the user community can afford. It is for this reason alone that liaison with CEPT is a high propriety activity.

A heartening feature of the present situation is that a number of members of the RARE Council of Administration are also on the EARN Board of Directors; furthermore EARN has been accepted as an international member of RARE, so there is much contact between the two organisations. There is some residual unease in RARE that EARN will divert scarce resources from ISO activities and that the ultimate migration of EARN to ISO protocole will prove more difficult than expected.

EARN has and continues to fill a need, the future of which will be made all the more reliably fulfilled for all by the RARE initiative. The aims of service now (by whatever means) and an ideal system in the future are difficult, but not impossible to reconcile. The conclusion by the present author, who has one foot in each of the organisations, is that EARN and RARE are complementary: EARN provides service, RARE plans the future. With present indications of close cooperation between the two, prospects are good: there is no conflict or rivalry.

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Earn and Rare: Complements or Rivals

ESPRIT Technical Week 1986 Proceedings

The final version of the full text of the 1986 Technical Week has been published by North-Holland. The two volumes are available and cost 200 Dutch Guilders for 954 pages. Copies can be ordered through the book trade or directly from North-Holland, PO Box 1991, N-1000 BZ Amsterdam.

Council adopts Decision on Standards in Field of Information Technology and Telecommunications

On 22 December 1986 the Council of the European Communities, meeting in Brussels, adopted a decision on Standardisation in the field of Information Technologies and Telecommunications. This decision was based on the Commission's proposal which was submitted on June 25, 1985, in COM (85) 230 Final.

This document lays down Community policy on standardisation. It calls for a strengthening of the existing procedures and for an annual determination of the priorty standardisation requirements, so that work plans can be drawn up and any standards that are deemed necessary can be entrusted to the competent technical bodies.

It also requires Member States to make reference to (European or International) standards when placing public procurement orders relating to information technology and telecommunications. Details of the application of this requirement as well as exceptions to it, e.g., orders worth less than 100.000 ECU, continuity of existing systems, genuine innovation etc. are outlined in the decision as well as requirements for the provision for the end-to-end compatability based on functional specifications for the telecommunications services needed to support IT standards.

The decision confirms the role of the Senior Officials Group on Standardisation in the field of Information Technology (SOGITS). The Commission will consult the Group when taking various actions such as determining Community priorities, dealing witin matters concerning verification of conformity etc. and will coordinate with other committees on related topics.

The decision will come into effect one year from its publication in the Official Journal of the European Communities.

Barriers to the Growth of the European Information Industry

The interim report of the above title, prepared by a Joint Working Group of EUSIDIC and EURIPA (which included representatives of DG XIII) has just been published. The study group confirms the general user view that telecommunications access remains a major hurdle for non-specialists (the "naive" user such as doctors, farmers, journalists, accountants, engineers), with the main factors indentified being the complexity of using international data networks, tariff policies (particularity absence of international reverse charging and complicated non-transparent tariff structures), and unreliability of international public data network interconnections...

Among factors bearing on the development of a unified European information industry, it is stressed that whilst language and cultural differences operate in Europe, non-European suppliers appear to have little difficulty in creating a market wheras European producers fail to do so. In its conclusions, the working group indicates that tackling the obstacles is not solely the responsibility of international bodies and governments, but requires active support and resources from the industry involved and that barriers are not only of a technical nature, but include equally legal and fiscal aspects.

Copies of the report can be obtained from the EUSIDIC Secretariat, PO Box 429, London W4 1UJ.

Commission Reports on Esprit Phase 1 to Council

In early 1986, when the Council noted the report of the ESPRIT Mid-Term Review Board, the Commission announced that it intended to submit a supplementary report taking account of the developments since the presentation of the Mid-Term Review.

This Report has now been published in the form of a communication from the Commission to the Council (COM (86) 687 Final). This report, entitled: "ESPRIT, The first phase, Progress and Results" is in the process of being re-printed in book form. It is hoped that it will be available to anyone who wants a copy in late February or early March. It will be available in three languages (English, French and German) and copies will be obtainable from:

Mr. M. W. Rogers
CEC
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200, rue de la Loi
B-1049 Brussels
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EuroKom News

The new Year at EuroKom

Since this is our first issue in 1987, it is worthwhile to

- Take a brief look back at last year, and
- Point toward some major milestone we see ahead during the coming twelve to eighteen months.

User Numbers - Active and Otherwise:

Our user numbers more than doubled during 1986, from a total of about 700 registreted users at the end of 1985 to over 1500 now. A count of REGISTERED users, however, is rather meaningless. During the initial period of the EuroKom service, many hundreds of ESPRIT participants signed registration forms, and never subsequently used the service, for a variety of reasons. Although these people are still in the database, and in most cases appear to want to keep their registration, our key usage measurement is the number of ACTIVE users on EuroKom, that is, those people who use the system on a regular basis.

This statistic also improved substantially during 1986. At the end of 1985, we had a total of about 400 active users, or about 60% of the total registered. At the end of 1986, our active user population is over 1100, and represents about 75% of the total registered. This active proportion will increase substantially during the early months of 1987. Our price change last November will tend to encourage inactive users to withdraw, and we have been working for some months to remove inactive people, by writing or telephoning them to either help them with any access problems they have, or encourage them to withdraw if they do to need to use the system.

Although in practice EuroKom can handle many thousands of users, whether active or inactive, a large body of dormant users defeats the purpose of electronic mail; most users would prefer a smaller but more active user population, in which messages and conference notices will be received rapidly and answered at least the same day.

Many users will be now have received our new User Registration Form, which will also play a role in identifying those users who do intend to use the service. Essentially, our measurement of real and interested users will be based on the number of people who sign and return this Form. We need the new agreement in any event, to comply with Data Protection considerations, and to allow the CEC to use user-names in a central database. The Form will also hopefully stimulate the dormant user to make up his mind either to join the rapidly growing EuroKom club, or take his name off the database. We obviously hope most people will choose the former.

Technical Milestones - 1986:

Most of the technical enhancement work which commenced during 1985 culminated in beta-test and release in the latter half of 1986. Our users now make routine of the Telex Inter-Connect, the connection to the U.S. networks, the bridge to the European UNIX Users Network, and the link with our colleagues in QZ. A significant further step towards full connectivity for EuroKom is the EAN/X-400 gateway, which was commissioned by DG XIII in line with its interest in promoting standards and accelerating migration of existing services to these. This activity started in October 1986, is presently implemented and is being tested prior to becoming operational and available to all users. Discussions with various X-400 sites and gateway operators are underway and beta-tests are expected to be completed in March.

Annexes to the User Manual, completed and distributed last year, are under preparation to provide instructions for the usage of the Telex interface as well as the UNIX mail host (EUROIES).

With this, our schedule of tasks originally set out in out ESPRIT contract is now complete and we are currently discussing requirements and functionalities for the next phase of the service.

1987 - An Overview:

As we look forward through 1987, we see a number of milestones, both major and minor. Although further detailed planning is required on some issues, it is useful to share the key items with our users at this stage. We always welcome reader reaction to our news and suggestions

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here, either by surface mail or via EuroKom. For those users who have a particular interest in a new functionality within EuroKom, or a change to the current system, now is the time to talk to us.

Middle to late 1987:

Our migration away from the current equipment and software is now likely to happen during the Summer of this year. The DEC-20 has served us well for a number of years, and has lived through an expansion in user numbers and functionality far beyond our original expectations, but we intend to roll in the next generation of hardware a long time before the DEC-20 begins to protest about its age.

Apart from the significant effort involved in planning this major migration for the mainstream service, we are discussing currently increased functionality with DG XIII, with the intention of releasing a phased sequence of significant new features based on the new equipment and software.

Current Work:

To prepare for this migration effort, and to ensure that our service quality is maintained during the transition, some intensive work is underway at the moment:

- As mentioned already, the database is being pruned substantially, and dormant users are being removed. The Change Name command has been taken away, and multiple EuroKom names associated with one DEC loginname are currently being removed, or registered as new login names. Put simply, we want to carry a clean, fit, and healthy database over to the new machine (or machines), and we don't want the new database to have any of our 'not present for 200 days' old reliables in the user-list.
- In cooperation with QZ in Stockholm, who provided us with the current base software, we commenced a substandial study late last year into the internal workings of database and mail software. Our objective was to identify specific ways in which current response time could be improved, to cater for growth during the transition to a new system.
- This work has yielded some very interesting results, which will be the subject of specific announcements in EuroKom. Suffice to say there that we are now confident that, given some intensive work both at UCD and QZ over the next couple of months, current response times can be maintained and improved despite the expected growth. As we can go through the Performance Improvement Program, we are finding useful modifications to the system that can be implemented right away, and many users will have noticed improvements in the last month or so, like the Review command (now remarkably well-behaved), and the Send command (has smartened up quite significantly).

Announcements/Developments First Quarter:

EAN/X-400
As discussed above, this gateway is now implemented, and will be announced within this quarter. The current gateway uses the Sydney EAN software, and we expect to move toward CEN/CENELEC - conformant X-400 near to the end of March.

Eurocontact Database:
This 'marriage brokerage service' for participants of the ESPRIT and other IT research programs, is now implemented using the Empress database software on our UNIX environment, and the CEC are now in the process of mailing the Data Entry forms. Please not, these forms should NOT be returned to EuroKom; they are first received and preprocessed by the DG XIII and then passed to us.

European Support Office:
Work ist well advanced on our first Support Office in continental Europe, which we hope to announce also in the quarter. This office will initially have a Help-Desk manned by existing Dublin staff on rotating assignments, and will have facilities for training sessions and User Group Meetings. Further details in the EuroKom News conference on the system. During 1987, we hope to meet our users on a much more frequent basis than has been possible up to now, and the staff based in our European Office will be travelling about Europe quite a bit, visiting users and prospective users in the various countries.

Hanover CEBIT and later:
We will be well represented at the Hanover CEBIT event in March, with staff and on-line terminals promoting the EuroKom service and

Eurocontact. A number of other similar promotional events will also have a EuroKom presence, of which more information in the next issue of the IES Newsletter. If you are at Hanover, don't forget to say hello.

And finally - welcome to new user groups:

As most readers will know, the majority of our users up to now has come to us from the ESPRIT community, as the EuroKom service is funded and contracted for just like any ESPRIT project.

We are happy to announce that the CEC have now decided to make EuroKom available to the wider community of CEC-sponsored R&D activities throughout Europe, and a number of such programs are now beginning to register in relatively large groups.

We warmly welcome these new populations of users, and know that our current users will also welcome the opportunity to exchange ideas and information with a wider spread of colleagues and friends throughout the Community.

With any service such as EuroKom, there is a point when a critical mass of cooperating researchers is achieved, and the benefit to the user jumps by an order of magnitude. With this recent development, and the continuing flow of new registrations from ESPRIT, we feel we have passed this historic point in our development both as a service and an organisation, and we look forward to a fascinating and challenging 1987.

Further information:
EuroKom Help Desk
Tel. no. 0035-31-69 78 90
UCD Computer Centre
Belfield
Dublin 4
Ireland

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(Issues 1-7)

European Initiative for Functional Standards

1. THE BACKGROUND

In 1979, the EEC summit meeting in Dublin decided to promote the suppression of trade barries by increased use of Standards. In response to this, the then European Commissioner for Industrial Affairs (Vicomte E. Davignon) invited representatives from the European IT industry to meet with him and senior CEC officials on an occasional basis to seek ways of implementing this decision and of involving them in fundamental cooperative activities. This became know as 'The Round Table'. The companies involved were:

United Kingdom:
GEC, ICL, Plessey

France:
Bull, CGE, Thomson-CSF

Federal Republic of Germany:
AEG, Nixdorf, Siemens

Italy:
Olivetti

Netherlands:
Philips

1.1 ESPRIT

The first outcome of the Round Table was the evolution of the concept of ESPRIT, in which the accent was on IT research in a pre-competitive environment, with industry itself taking a lead in defining the content of the program and in carrying in out. During 1981 and 1982, preparatory studies were undertaken, out of which grew not only the five main areas of research now being undertaken, but also the concept of the Information Exchange System. It was recognised that the communication needs of the participants in ESPRIT could be met by an ambitious program of adoption of OSI principles and standards, backed up by a degree of central organisation to manage their use.

A pilot project was put in place, based on provision of linkages between UNIX-based systems, originally known as EIES, and this has now developed further into a full infrastructure project under ESPRIT, known as ROSE.

1.2 Standardisation Policy

A second outcome was more specifically directed towards the development of a policy for IT Standardisation in Europe. The industrial members of the Round Table undertook in March 1983 to consider this issue, and formed an Ad Hoc Group for Standards, which was later renamed 'SPAG' – The Standards Promotion and Application Group. In October 1983 SPAG was invited by the Commissioner to make a proposal. This was done in January 1984, and a substantial document submitted, outlining the essence of such a policy, based firmly on the common adoption of International Standards, by the CEC and by its member states; not just their formal adoption as National Standards, but their application as the basis for procurement by institutions and the user community at large, backed up by clearly established mechanisms for verification and certification.

This policy identified the need for a new concept of Functional Standards – groups of standards selected to be used together in specified ways to provide a defined user-preceived function. The list of standards selected was firmly based on the current state-of-the-art of OSI, using stable standards where available from ISO and CCITT, with additional components, where suitable, from ECMA. A further annexe identified a long list of other ares which would be pursued once stability was achieved.

2. CEN and CENELEC

2.1 ITSTC

The next step in the process of developing a European Policy was taken in May 1984, when the Ministers of Industry from the ten EEC countries created a committee to promote such a policy (SOGITS). The first outcome of this was the decision by the CEC to invite the Joint European Standards Institution (CEN and CENELEC) to take part in the establishment of harmonised European Standards (ENs) according to the existing rules of CENELEC. A steering committee (ITSTC) was established, with four representatives each from CEN and CENELEC to which were later added four from CEPT. A 'Framework

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Contract' was drawn up, and later signed, to cover the central costs of the activity, including the establishment of an electronic document transfer system.

2.2 HD 40 001

The first action was to launch a Public Enquiry (PQ) on a draft Harmonisation Document (prHD 40 001) in June 1984, which included verbatim the original technical annexe of the SPAG proposal to the CEC. This HD presented the concept of Functional Groups of Standards, and a list of related base standards, with the requirement that national activities aimed at adopting standards in these areas be at a standstill pending the issue of harmonised ENs. The general response to this prHD from the 17 members of CEN/CENELEC was favourable to the concept, but critical in detail on some areas of the technical content. As a result, the ITSTC produced a definitive version of the draft HD in November 1984, based on approximately 30 of the standards in the original list which reflected the consensus of the members, as expressed in their responses to the first draft. This was approved in March 1985, and issued as a definitive statement.

2.3 Expert Groups

Meanwhile, ITSTC had decided to extend the scope of the program both to include the means of developing the required Functional Standards, and to establish policies for a acceptable verification and certification procedures based on these standards, aimed at forming the legal infrastructure of harmonised procurement policies throughout Europe. The immediate result of this was the creation of two ad hoc expert groups.

The first of these, ITAEGS, is responsible for the definition of the concept of Functional Standards, for proposing and maintaining the program of work, and for coordinating the work of the IT-Working Groups which develop the Functional Standards. It includes two representatives each of CEN, CENELEC, CEPTand SPAG members, with observers from the CEC and occasional representation from the IT-Working Groups.

The second group, ITAEGC, has reviewed the current status of verification and certification procedures and facilities, and made recommendations to the ITSTC.

Subsequently, a third group, ITAEGM, was formed to study the IT aspects of Advanced Manufacturing Technology.

ITAEGS has been responsible for developing a statement of the concept of Functional Standards, and of the structure and content of the proposed ENVs and ENs. This is being published by ITSTC as Memorandum M-IT-01. Section 3 of this paper, describing the concept of Functional Standards, is taken largely from the draft of this Memorandum which was current at the time of writing.

ITAEGS has also advised ITSTC on the content of the program of work of the IT-Working Groups. This is presented in the first instance as a Directory of Functional Standards (M-IT-02), which gives a tree-structured representation of the full set of Functional Standards, and a summary definition of each one. Subsequently, ITAEGS extracts from this directory proposals for ITSTC as to the items which are capable of being progressed by an IT-WG, on the basis of the use of a set of stable International Standards or Draft International Standards. This phased program is being developed as a further Memorandum.

It is the intention of the CEC to fund the development of each ENV/EN in this program, by means of a separate 'Order'; this will cover the main costs of the working groups (experts and secretariats) and thus improve the availability of national experts to work on the Functional Standards.

2.4 IT-Working Groups

The development of the methodology for producing the Functional Standards is now more or less complete, and includes two procedures for the development and approval of European Pre-standards (ENVs), and their subsequent ratification as full European Standards (ENs). ITSTC envisages that the

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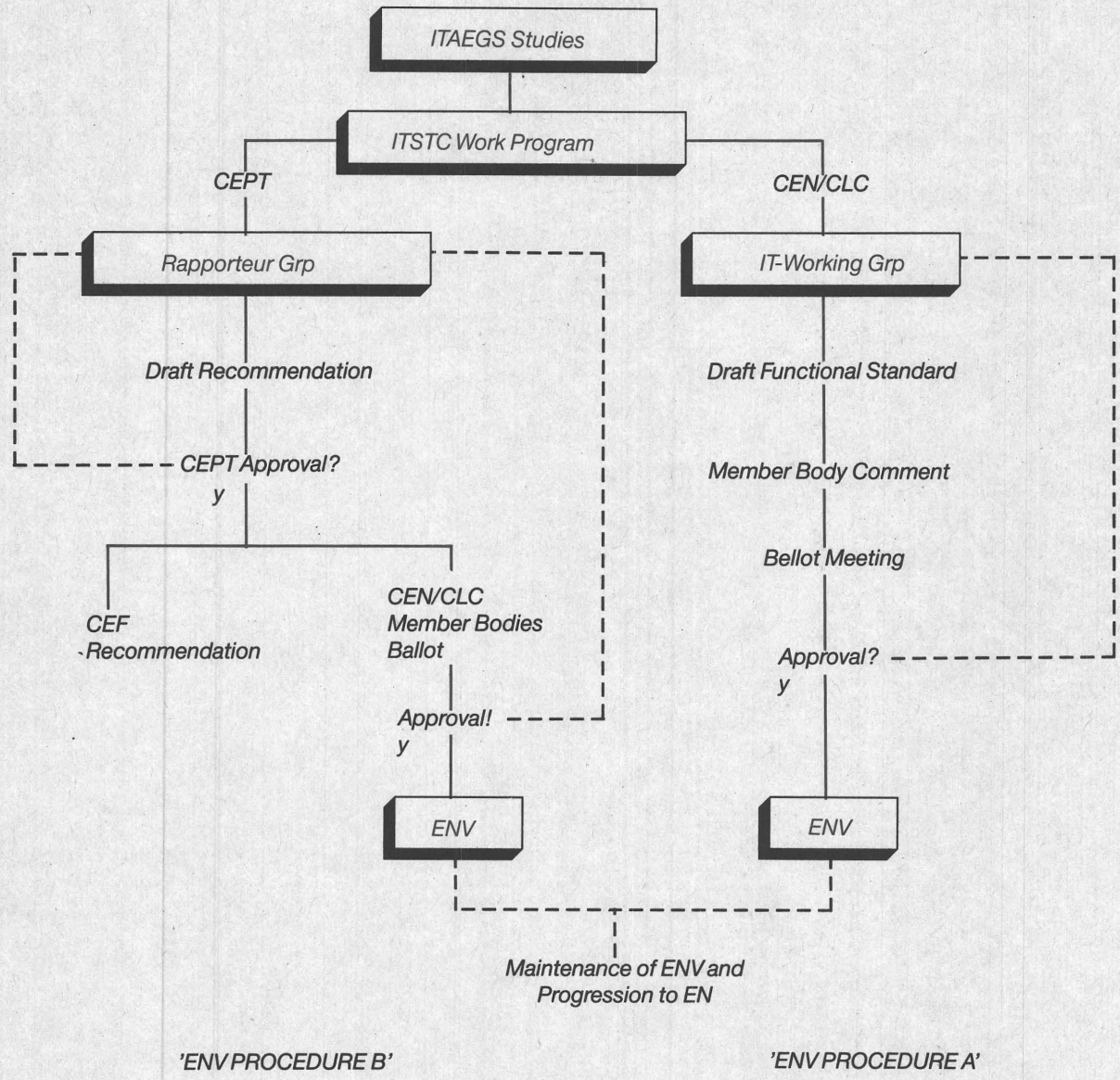
source material for the production of ENs as Functional Standards will come from already existing work, where this is suitable. This will be processed in separate IT-Working Groups under either CEPT or CENELEC auspices, before being approved by the member bodies of CEN and CENELEC in the individual countries. The basis of the two procedures is as follows:



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3. Functional Standards

3.1 General Concept

The purpose of a Functional Standard is to make a recommendation as to when and how certain information technology standards should be used to meet an identified need. These recommendations are of the form:
"If you want to provide Function X, then use standard(s) A, B, C... like this".

Each function must be clearly defined, so as to avoid confusion with any other function, and to allow easy recognition of instances of the function in the real world.

A Functional Standard is capable of being used:

a) to define the way in which one or more standards is used in combination in a particular environment to meet a particular requirement;

b) to promote the early use of stable drafts of standards in a controlled manner;

c) to provide a system of referencing the various uses of standards which is meaningful to users and suppliers alike;

d) as the basis of tests of conformance to those sets of standards as used in those environments, and the related certification process.

As a result, it is possible to make a Requirement Statement of the form:

"System A shall be able to perform interworking in conformance to the combination of the following Functional Standards: – ...."

3.2 General Principles

A Functional Standard specifies the application of one or more OSI standards in support of a specific requirement for communication between computer systems.

A Functional Standard does not alter the standards to which it refers, but makes explicit the relationships among a set of standards used together (relationships which are implicit in the definitions of the standards themselves) and many also specify particular details of each standard being used.

It follows that a Functional Standard:

a) does not require any change to the structure defined by the Basic Reference Model for OSI;

b) does not alter the nature of the conformance requirements for the standards to which it refers (though it may specify additional requirements which are relevant to their use in the particular environment for which it is intended);

c) does not define the total OSI interworking functionality of a system.

3.3 Content of a Functional Standard

Each Functional Standard is a document which comprises:

a) A simple definition of the Scope and Field of Application of the function. Some Functional Standards contain definitions of two or more closely related Functions, where their working sets differ only with respect to perhaps one of the referenced standards. Where there are distinct user-visible differences beween such linked Functional Standards in the function provided or the environment used, then they shoud be given distinct identifications. This is important in ensuring that in the user supplier relationship, explicit use can be made of a named Functional Standard.

   If the resulting differences are less visible (for instance relating to the way in which the interworking systems are initialised or controlled), then they can be expressed as options of a single Functional Standard.

b) A single working set of standards, including precise references to the actual texts of the standards being used, and any other relevant source documents.

c) An illustration of the scenario within which the function is applicable. The scenario is typically a simple diagrammatic representation of the environment to

which the Functional Standard applies, and of the end systems and any intermediate systems involved. It is accompanied by a simplified layer diagram indicating the main referenced standards.

d) A statement defining the requirements which must be observed by products claiming conformity, including any remaining permitted options of the referenced standards, which thus become options of the Functional Standard.

e) Specifications of the application of each referenced standard covering recommendations on the choice of classes or subsets, and the selection of options, ranges of parameter values, etc.

f) Where necessary, recommandation on the resolution of ambiguities in the working set of standards and on the correction of errors within them. (But these are not the primary purpose of a Functional Standard, and would be relevant only until the appropriate amendments were applied to the standards concernend.)

This structure of a Functional Standard can be summarised as follows:

Functional Standard =
- **Function definition*
- **References to working set of standards*
- **Scenario*
- **Statement of conformance requirements*

and for each standard, implementation choices:
- **Chosen classes or subsets*
- **Selected options and parameters*
- **Recommended ranges of parameter values*
- **Interpretations of ambiguous points and correction of errors*

3.4 Classification and Identification of Functional Standards

The Memoranda 01 and 02 define a fundamental structure for the classes of Functional Standard which are to be produced, and allied to this is a naming scheme, which incorporates a letter to identify each Class. The two main classes are:

T/– Telecommunications. This covers Functional Standards in the lower four OSI Layers, providing (at present) the Connection-oriented and Connectionless Network environments.

A/– Applications. This covers Functional Standards in the upper three OSI layers, all (at present) using the Connection-oriented Transport Service.

Other Classes are:
- R/–: Relays;
- Q/– and S/–: Data formats and contents;
- C/–: Combined (e.g. for Telmatics);
- Y/–: Non-OSI subjects.

4. The way ahead

None of the participants in this European Initiative suggests or expects that the results of the work will be unique to Europe, or that Europe can stand apart from the work of ISO and CCITT. This activity has grown up in recognition of the gap between the formal ratification of layer standards in conformity with IS 7498, the establishment of effective conformity testing and certification procedures related to the needs of users, and the desire of users and suppliers to put the good work of OSI into practical use as quickly and as efficiently as possible. In ISO, TC/97 is starting to look at the implications of Functional Standards on the work in progress and already completed on the individual Layer Standards of OSI.

Ways will have to be found to ensure that the outcome of this work takes account of, and is incorporated into,

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a wider scenario involving the other major participants in OSI, particulary the USA and Japan. Contact already exists with the USA in the involvement of European industry with the NBS-sponsored LAN demonstrations last year. Contact also exists with the US IT-Industry at a technical level in the work of ECMA in Europe, and in the growing consensus on OSI engendered by the General Motors MAP and Boeing TOP projects. CEN/CENELEC member bodies will need to find a way to promote their European accord into ISO, and CEPT member administrations will likewise have to promote it into CCITT.

JAN VAN HERP
CEN/CENELEC, BRUSSELS

Editor's Corner

With almost daily announcements of new, revolutionary improvements in computer and telecommunication technologies, it is all too easy to forget their humble beginnings. Rummaging through my bookshelves over the holidays I came across some half-forgotten facets.

Thus it was 1934 when a Berlin student, Konrad Zuse, began to design a universal calculating device which anticipated modern computers by including binary rather than decimal numbers and floating point calculation, the programming rules of Boolean logic and the distinctive structure of a concrete open information processor, as well as punched tape input, a central processing unit, memory, programming, an internal controller and an output device to display results. By 1939, Zuse had constructed an electro-mechanical relay machine, and by December 1941 the world's first general purpose, program-controlled calculator, was in regular operation: two specialised versions of these were used to analyse wing flutter in aircraft.

Parallel developments in the U.S. led in 1937 to the design by Atanasoff, a Bulgarian emigree, of a digital calculator similar in principle to Zuse's machine, but lacking a central processor. On the other hand, use was made of electronics - vacuum tubes - rather than relays for processing. By 1942, Atanasoff had operational two rotating drum memories. It should also be noted that ENIAC, considered by many as the first modern computer, was actually less advanced than the Atanasoff machine: it used decimal numbers and hence could not exploit Boolean logic, had no central processor and only partially distinguished between processing and memory.

Another early pioneer, George Stibitz, built on his kitchen table an electric adder, which fulfilled the principles laid down by Shannon in 1938. Stibitz, a Bell Laboratories physicist, was ignorant of Shannon's work, but was encouraged by his boss and by October 1939 had built the Model I calculator at a cost of $ 20.000. This machine was wired permanently to solve equations and was not further programmable, but because it input and output via teletype, could be used from anywhere in the telephone system. In September 1940, Stibitz installed a few teletypes at Dartmouth College, New Hampshire, to demonstrate the Model I in New York - the first use of remote computing via a network - the telematic society had been born.

If any reader can add a bit of history, it would be greatly welcomed.

List of Abbreviations

CEC	Commission of the European Communities
CEN	European Committee for Standardisation
CENELEC	European Committee for Electrotechnical Standardisation
CEPT	European Conference of PTTs
EN	European Standard
ENV	European Pre-Standard
ESPRIT	European Strategic Pre-competitve Research Program for IT
HD	Harmonisation Document
IES	Information Exchange System
ITAEGC	IT Ad-hoc Expert Group on Certification
ITAECM	IT Ad-hoc Expert Group on Manufacturing
ITAECS	IT Ad-hoc Expert Group on Standards
ITSTC	IT Steering Committee
ITTCS	IT and Telecommunications Task Force
ROSE	Research Open System for Europe
SOGITS	Senior Officials Group for IT Standardisation
SPAG	Standards Promotion and Application Group

Some Legal Aspects of Information Exchange

The most recent issue of "The Computer Law and Security Report" draws attention to some practices in Information Exchange which are of general interest. There is the still unresolved question of copyright in programs: whilst under U.K. law at present, source code is protected by existing copyright legislation, object code may not be, since it appears to be considered a form of adaptation only of an original work. There is a growing sense of urgency, that legislation, framed before information technology revolutionised handling of "written" material, is not adequate for dealing with the existing position, which will be rendered more difficult by the growing use of telecommunications stretching across borders.

Another interesting development affects Electronic Fund Transfer, possibly the most intense field of application of computer-to-computer communications. A voluntary code of conduct for such services appears to be emerging: significant points in this are the demand for a paper receipt for all transactions at electronic terminals used in banking systems, such a record also to include details of balances of the bank accounts involved, and provisions for a greater degree of privacy and responsibility of operators of such systems.

A U.K. First

British Telecom has started engineering trials for the world's first message handling service based on internationally agreed standards. The trials are expected to lead to a public service in the Spring, designed to make electronic transfer of messages as commonplace in business as the letter post. The system will offer a "document conversion" enabling users to exchange messages on a wide variety of office equipment, visual display units, work stations. PCs, word processors, Teletex and Telex terminals and Facsimile machines. It will provide a directory of all users connected to it.

EUROTRA Machine Translation Demonstration

An online demonstration of the capabilities of the EUROTRA machine translation system of advanced design, supported and coordinated by DG XIII, was held on February 9, 1987, by CRETA (Centre de Recherches et d'Etudes en Traduction Automatique) on the premises of the European Institute for Information Management. Examples of translations for the six language pairs between Danish, English and German showed the step-by-step analysis and synthesis involved in these complex programs.

SYSDOC System Upgrade

Over the next six months, a feasibility study is to determine how best to apply computer storage and retrieval techniques for full text of documents to help meet the information needs of Euro-MPs and European parliament staff. (SYSDOC: feasibility study into full text feature). The study will be made by Solon Consultancy of London.

Our Questionnaire

Because of pressure on space, we are unable to bring this time the promised evaluation. This will now appear in the April issue.

IES NEWS is your newsletter. We want your comments, views and contributions. Help us to fulfill this aim. All communications to

Peter Popper
c/o European Institute
for Information Management
13, rue de Bragance
L-1255 Luxembourg.

or via EuroKom.

If you are not yet receiving your free copy, please contact us.

Esprit
Information Exchange System

IESNEWS

Issue No 8, February 1987

A new group of users will be appearing on EuroKom soon. They are participants in the Commission's Biotechnology Action Program (BAP) and will be using the system in the same way that participants in other programs, e.g. ESPRIT, use the system. Mr. Peter Reiniger, coordinator of the BAP Contextual Measure sub-program, which will cover bio-informatics and collections of biotic materials, areas aimed at supporting the basic biotechnology work, explained to IES News that with 51 researches in 16 laboratories spread throughout 9 of the Member States (Spain, Denmark and Luxembourg are not yet participating in the program) it was necessary to have some sort of E-Mail/Conferencing facility to exchange information among themselves.

Biotechnologists become EuroKom users

EuroKom was chosen for many reasons:

1. EuroKom is an electronic mail and conferencing facility aimed at members of the European research community and many of the activities in which the BAP is involved are also the subject of research programs run by DG XIII so that conferences on Artificial Intelligence, Bio-Medical research etc. already exist on EuroKom.
2. The existence of a conferencing facility was also of great importance. The ability to discuss matters other than on a one-to-one basis was considered of prime importance.
3. The link with the ESPRIT program is also important. Participants in BAP will be able to keep up with developments in areas such as standards which, while not important directly to the program, would have relevance in keeping the participants in touch with one another.
4. It was relatively easy to arrange. EuroKom is an existing, tried and tested system co-funded by the Commission.
5. File transfer was also a major consideration.

Mr. Reiniger also expressed that opinion that membership of EuroKom would help BAP associate more closely with other European research programs and help foster ties within the European Research Community.

"We should avoid," he said, "estabilishing barriers between programs."

Future Events

Foundations of Innovative Software Development.
Universita di Pisa.
Pisa, March 23-27, 1987

The Outlook for the Information Industry
EURIPA, Luxembourg,
March 23-24, 1987

Computer-Based Tools for Information Systems Analysis.
Leicester Polytechnic.
Leicester, April 14-16, 1987

Optica 87.
Learned Information.
Amsterdam, April 14-16, 1987

Europrospectives.
C.N.R.S. La Villette.
Paris, April 23-26, 1987

VLSI and Computers.
I.E.E.E. and G.I.D.
Hamburg, May 11-15, 1987

Future Events

Information, Documentation and Knowledge Transfer.
A.D.B.S. and A.N.R.T.
Strasbourg, May 12-14, 1987

Expert Systems and their Applications
Avignon, May 13-15, 1987

Communication and Data Communication.
Université Libre de Bruxelles.
Nivelles, May 25-27, 1987

Computer-Assisted Training in Services and Industry.
Duttweiler Institute.
Lugano, May 25-26, 1987

ADA Components: Libraries and Tools.
A.C.M. and CEC.
Stockholm, May 26-28, 1987

Fibre Optic Communications and Local Area Network.
IGI Europe.
Basel, June 3-5, 1987

Distributed Computing Systems.
Hahn-Meitner Institut.
Berlin, September 21-25, 1987