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Esprit Information Exchange System

iesnews

Issue No 29, August 1990

In the February issue of IES News we announced the forthcoming publication of a four-volume survey "OSI Products". Due to various delays, our copy of the first volume did not reach us to include the promised review in the April issue.

"In the United Kingdom, both the Department of Trade (DTI) Information Technology Standards Unit (ITSU) and H.M. Treasury's Central Computer and Telecommunications Agency (CCTA) strongly recommend users to consider OSI as a fundamental element in their IT strategies.

The new publication, OSI Products, indicates the extent to which suppliers of IT systems can now offer products that implement and are compatible with the standards for Open Systems Interconnection (OSI). It demonstrates that a significant number of suppliers can now deliver compatible products and that implementation of such strategies can commence now. Both DTI and CCTA are encouraged by the results of this survey."

OSI PRODUCTS

The above two introductory paragraphs set the background and indicate the significance attached to this publication. The current volume, the first of four, presented in the form of a loose-leaf binder, provides an introduction to the whole series and includes background information related to standards and the standardisation process that will assist readers in planning for the use of OSI and understanding the future volumes.

The various sections of Volume 1 are:

1. Introduction to OSI Products.

In defining sources of standards it is indicated that the primary concern is with international standards with emphasis on those specified by the International Organisation for Standardisation (ISO) and the International Telegraph and Telephone Consultative Committee (CCITT). The strong influence of functional standards and profiles is also acknowledged.

Continued on pages 2 to 4

LATE NEWS

Information Security - A European Issue.

Mr. M. Carpentier, Director-General of DG XIII, will give the opening address at the Information Security Evaluation Criteria conference, to be held in Brussels, 25 - 26 September 1990. Further information can be obtained from: Mr. U. Gebel CEC Fax. +32-2-2350654.

New Periodical

J.C. Baltzer & Co. have announced the publication of "Annals of Mathematics and Artificial Intelligence". Two volumes will appear annually.

OSI Products

Copies of this publication can be obtained from: TECHNOLOGY APPRAISALS 551 London Road Isleworth TW7 4DS United Kingdom.

Platform for Collaboration in Distance Education

At the May Conference on International Collaboration in Distance Education, a platform, the Budapest Platform, was established to further collaboration in this area. Further information from: The Secretariat Gjerdrumsvei 12 N-0486 Oslo 4

THIS ISSUE:

COSINE News

Esprit
DGXIII
Telecommunications
Information Industries
and Innovation

STANDARDS SUPPORTED / SUPPLIER	8802-3	8802-4	8802-5	ACSE	ASN.1	CCR	CLNS/LAN	CLNS/WAN	CONS/LAN	CONS/WAN	Directory	EDIFACT	FTAM	JTM	MMS	ODA/ODIF	Presentation	ROSE	RTSE	Session	SGML/SDIF	Transport	VTP	X.409	X.25(80)	X.25(84)	X.25(88)	X.400(84)	X.400(88)
3COM	N		N	N	N		N			N										N		N	N		N	N		N	
Alprange Communications	N			91	91		N		N	N							91	91	91	N		N		N	N			N	91
Apricot Computers	N			D0	D0		N		N	N			N							N		N	J0		N	N		N	
BICC Data Networks	N						N															N							
British Telecom	D0		D0				D0			D0			J0			N						N			N			N	
Bull HN	N	N	91	N	N	N	N	N	N	N	D0	N	N			D0	N	N	N	N		N		N	N	N	D0	D0	D0
CASE Communications	N			A0	A0		N	N		N	91	91	A0				A0	A0	91	A0		N		A0	N	N	N	D0	J0
Concord Communications	N	N		N	N		N								N		N			N		N							
Concurrent Computer Corp.	N			D0	D0		N	D0		N			D0				D0			D0		N		D0	N	D0		D0	
Control Data	N			N			N	N	N	N			N				N					N	91		N	N		N	
Cray Research				91			91						91				91			91		91							
Data General	N		N	N			N	N	N	N			N				N			N		N			N	N		N	
Digital	N			N	N	N	N	N	N	N		N	N		N	N	N	N	N	N		N	N	N	N	N		N	N
Hewlett-Packard	N	N	N	N	N		N		N	N	N		N		N		N	A0	A0	N		N	A0		N	N		N	91
IBM	N	N	N	A0	A0			A0		N		N	J0		N		A0			N	N	N		A0	N	N		N	
ICL	N			N	N		N			N	D0		N				N	N	N	N		N	91	N	N	N		N	D0
Internat. Network Services	N											N										N					N		
Marcol Computer Systems	N				N		N		N	N										N		N		N	N	N		N	
mbh Software & Systems	N			N	N				N	N	N		N		N		N	N	N	N		N		N		N		N	
NCR	N	D0	N	N	N		D0	N		N	N		N				N	N	N	N		N		N		N		N	
Netcomm	N								N	N															N	N			
NET-TEL Computer Systems	N		N	D0	N		N			N	D0						J0			N		N	D0	N	N	N		N	

STANDARDS SUPPORTED / SUPPLIER	8802-3	8802-4	8802-5	ACSE	ASN.1	CCR	CLNS/LAN	CLNS/WAN	CONS/LAN	CONS/WAN	Directory	EDIFACT	FTAM	JTM	MMS	ODA/ODIF	Presentation	ROSE	RTSE	Session	SGML/SDIF	Transport	VTP	X.409	X.25(80)	X.25(84)	X.25(88)	X.400(84)	X.400(88)
Nixdorf Computer	ND		ND	A0	ND		ND		ND	ND			A0		J0		A0	A0	A0	A0		ND		ND	ND	ND		N	
Nokia Data	ND				J0		ND			ND			D0			ND	J0					ND	91		N	N		A0	
Novell					N																				N	N			
Olivetti	N			A0	A0		N						A0				N	N	N	N		N		N	N	N		N	91
OSIware				N	N						N							N	D0	N		N		N	N	N		N	N
Philips Business Systems	N			N			N			N			N	N			N	N	N	N		N			N	N	N	N	
Prime Computer									N	N												N			N	N		N	
Rank Xerox	N						N			N			91			D0				N	N	N			N		91	N	
Retix				N	N		N	N		N	N		N		N		N	N		N		N	N	N		N		N	A0
Santa Cruz Operation													J0										J0			J0		J0	
SEMA Group				N	N		N			N	N		N		N			N		N		N	N	N	N	N		N	
Siemens	N	N	N	N	N		N	N	N	N	N	N	N	N		N	N	N	N	N		N	N	N	N	N	N	N	
Software Forge										N		91	91				91			D0		N			N	N	N	91	91
Spider Systems	N						J0	N	N	N												A0			N	N			
Sun Microsystems	N				N		N	N		N										N		N		N	N			N	
Touch Communications	N			N	N		N	N		N	A0		N				N	A0		N		N		N	N	N		N	
Uniplex																D0									D0	D0	D0	D0	D0
Unisys	N		D0	N	N	J0	J0	N			A0	J0	N	91		J0		N	N	N		N	D0	N	N	N		N	J0
Wang	N			D0	D0		N	N		N	D0		D0			D0		D0	D0	N		N		N	N	D0		N	
Wollongong Group				N	N						A0		N					N	N	N		N	N	N	N			A0	

For Key to Standards Supported, see Table at end of text.

KEY: N = NOW, A0 = APRIL 1990, J0 = JULY 1990, D0 = DECEMBER 1990, 91 = 1991, ND = NO DATE INDICATED.

NOTE: Not all products/services may be supported; where more than one date of support is given, the earliest has been entered.

OSI Products

The volume thus identifies also products and services complying with the set of International Standardised Profiles (ISPs) developed by ISO; the sets of functional standards and attachment specifications (ENs, ENVs and NETs) specified within Europe by CEN/CENELEC/CEPT/ETSI; and procurement profiles developed in the UK (GOSIP) and USA.

In describing the relevance of applicable standards, it is pointed out that the scope of "OSI Products" in terms of standards is comparable to the set derived from the OSI Basic Reference Model and a few that are outside this, but are generally considered important for open communications between systems.

It should also be stressed, that whilst the publication is a result of an UK initiative, the suppliers invited to submit details of products are broadly based throughout Europe and the rest of the world. A chapter is devoted to guiding readers to gain maximum benefit from the volume(s) with detailed examples of how to find information required by a user.

2. Planning Guide

These chapters give an introduction to OSI pointing out the benefits of OSI. Next there follows a detailed description of the OSI model with explanations of key terms and concepts. Standards concepts and the organisations producing them are then described. There are chapters on functional profiles, application layer standards and profiles, upper layer support standards, transport services and profiles. Security, conformance and interoperability testing, and implementation of OSI in the user environment are the next to be discussed in detail. Finally, chapters are included on UK and CEC policy on OSI, and on user and supplier associations.

3. Company Survey

Brief details are given for each of the 42 suppliers for whom survey data are included, of their programmes for implementing OSI. It does not identify all products, but only the major existing products and the plans or strategy for further products. It includes, where relevant, OSI versus proprietary communications and/or non-OSI standards, what the major products are and how they appear to be integrated into software, availability and comments on commitment to profiles/functional standards and conformance/interoperability testing policy.

4. Product Survey.

This section represents the core of Volume 1. It gives an overview of the state of OSI development for each standard or group of standards and for each supplier who responded to the survey. An analysis of the state of implementations currently available and planned for each of the standards or groups of standards included in the survey is followed by three detailed set of tables identifying for each supplier the names of each relevant product with OSI capability; presenting the sets of products implementing specific standards; and a similar presentation relating to profiles. (In order to present the maximum information possible, the data of the first set of tables are presented in an expanded form of the OSI Products Table (See IES News 24).

The present volume is completed by a comprehensive glossary, particularly useful in expanding the many acronyms encountered in this field, and references to the many relevant UK Government and CEC Documents, as well as all the standards etc. mentioned.

Department of Trade and Industry, HM Treasury: Central Computer and Telecommunications Agency and Technology Appraisals Ltd.

SURFnet and PICA in Open Library Networking

SURFnet (a Dutch Network company for information and communication services in higher education and scientific research) and Pica (Foundation Centre for Library Automation) have signed a cooperation agreement making Pica's library network part of the SURFnet infrastructure. The agreement is regarded as an important step towards an Open Library Network in the Netherlands, based on OSI (Open Systems Interconnection).

A short review of the roles in (inter)-national automation projects follows.

What is SURFnet?

SURFnet is a value-added network offering to Dutch Universities, schools of higher education and governmental and private research centres a wide range of services, e.g. electronic mail, file transfer, remote login and job entry, conference facilities and bulletin boards. Gateway services to other networks, e.g. EARN/Bitnet, Internet/EUnet, IXI (COSINE) and the public Datanet of the Netherlands PTT, are also provided. The SURFnet organisation is a limited company of which Stichting SURF owns 51% and the Netherlands PTT 49%. Stichting SURF is the Dutch cooperative organisation for the advancement of computers and computer services.

SURFnet Infrastructure

Since the beginning of January 1990, SURFnet has been using a private network infrastructure based on the X.25 standard (1984). The network includes three key sites situated at the universities of Delft, Nijmegen and Amsterdam, which together with their interconnections form the SURFnet backbone.

What is Pica?

The Pica organisation originated from a research project on catalogue automa-

SURFnet and PICA in Open Library Networking

tion (Project for Integrated Catalogue Automation) on behalf of several Dutch research libraries. The main objectives of Pica are the automation of the library process and improved access to information and services for library users, and promoting cooperation between various libraries and other institutions in the field of information. Services provided by Pica are central and local systems:

Central System

The central system is a shared cataloguing database in which bibliographic records are stored only once. Local systems have access to the central database obviating duplication by libraries. The number of publications catalogued annually now exceeds 1,250,000 and over 6,000,000 titles have been stored in the central database which has more than 125,000 on-line transactions per day. Other central services are the On-line Retrieval System and Interlibrary Loan.

Local Systems

The Local Library Systems (installed at 16 institutes in the Netherlands) each consists of an on-line public access catalogue, an order/acquisition system, store and lending system and a workstation.

Plans are in hand to modernise and update the on-line public access catalogue comprising three modules: "work catalogue", "public catalogue" and a "cataloguing facility" which will permit direct entries on the central bibliographic database, with the title record being added to the local database at the same time.

Cooperation between SURFnet and Pica

Cooperation will significantly improve the services which Pica offers to Dutch higher education and scientific research. Furthermore it is an important step forward to an open library network in the Netherlands, the implementation of which will involve both SURFnet and Pica. The present Pica network operates on leased lines. This infrastructure will be integrated into the SURFnet X.25 network. Initially, local Pica systems installed at the Dutch universities will be connected, followed by connection of non-university libraries. These will include public libraries and institutes handling information in higher education and scientific research. The transition from Picanet to the SURFnet X.25 infrastructure will give Pica libraries access not only to all Pica-developed central services, but also to the SURFnet services.

Open Library Network

The open library network is a concept which improves access to the library systems and the communication between them. The central bibliographic database and the catalogues stored in all participating institutes can then be consulted from the same terminal, and documents can be reserved and ordered easily. The open library network concept offers the user the possibility of logging into the network and retrieving information from any host or other workstation in the network. This means that existing Dutch library facilities are made available to a larger group of users, in a better, faster and a more efficient manner. The Netherlands Government have given Stichting SURF a grant of Ecus 1.3 million towards the project.

SURFnet and Pica in an International Context

SURFnet and Pica both aim at an open network infrastructure based on international standards. SURFnet uses OSI standards for network infrastructure and network applications, Pica specifically uses those applied in the library world: e.g. the search-retrieve-update protocol and the Interlibrary Loan Protocol.

SURFnet provides a connection to IXI (International X.25 Infrastructure) network which links the European national research networks, allowing a sharing of the Dutch library services with other European library facilities connected to their national networks.

SURFnet participates in RARE (Réseaux Associés pour la Recherche Européenne) working groups. Pica is also involved actively in international networking projects, such as the CEC ION (Interlibrary OSI Networking) project between the United Kingdom, France and the Netherlands.

W.G. BUITELAAR

Further information may be obtained from:

Stichting SURF
P.O. Box 2290
NL 3500 Utrecht
Tel.: 31-30-311234
Fax.: 31-30-333540

Information Network and Data Communication.

IFIP (International Federation for Information Processing) held the third international conference of this series in Lillehammer, Norway, on 26 - 29 March 1990.

The Conference chairman, Prof. Eliassen stated in the welcoming address that data communication had played a major role in the development of information systems during the 1980s and that it seems clear that it will play an equal role in the decade to come. Exploitation of rapid technical developments required cooperating open information systems with appropriate communication structures. Application of standards for networking was mandatory to achieve it.

The main theme of the conference was application of open standards to

Information Network and Data Communication.

corporate information systems. Prof. A. Danthine reviewed and evaluated the OSI reference model in the light of new network technologies which have appeared since the model was first published. Although the model had exhibited robustness in its ability to absorb new technologies with only minor resultant modifications, Prof. Danthine considered that the time had come to revisit the model, its services and its protocols in order to better support the requirement for low response time in recently developed distributed systems.

The majority of papers presented showed that the OSI reference model had a major impact on system design. In the closing session, Prof. Linington presented requirements for extending the scope of OSI beyond the pure interconnection aspects of distributed systems. These have led to the initiation with ISO of a project to develop a new reference model for Open Distributed Processing (ODP) which was to build on the successful OSI work to create a framework to support the newer needs; although work on the ODP model was still in progress, it seemed likely that it would have as large an impact on systems design in the 1990s as OSI had in the 1980s.

The proceedings will be published in due course by Elsevier.

Further information from:
IFIP Secretariat
16 Place Longemalle
CH-1204 Geneva
Switzerland
Tel.: +41-22-282649
Fax.: +41-22-7812322

OPERATION 1992
Advanced Communications-Technologies in Europe.

In the course of 1989, sector actors co-operated with Commission Services in a systematic investigation of future requirements and options in precompetitive and prenormative R&D related to advanced communications technologies and their applications. One of the areas studied of particular interest to IES News readers was Integrated Broadband Communications (IBC).

Introduction.

In the light of the rapid and accelerating changes in world economy and the growing concern for the environment, demographic changes, new energy perspectives, changing labour markets and new applications of technology, information will become one of the most important basic resources, together with raw material, labour and energy. The management and processing of information will have a determinant influence on economic development and a major impact on everyday life. The possibilities offered by the interconnection of highly developed computer technology and modern telecommunications will provide an environment for far-reaching innovations.

The ambitious planned completion of the internal market in 1992 as a major contribution by the European Community to the "Common European House" should not only overcome historical differences in business and administration, but also avoid formation of new frontiers, whether social or economic.

Communications and the associated services are thus one of the key areas. The concept of IBC has been developed to denote the integration of broadband data, audio and image communications which will form the next generation of European communication systems. Broadband here is defined as digital access to networks from subscriber's premises at rates higher than 2 Mbits per sec. Evidence from the RACE (R&D in Advanced Communications for Europe) Programme suggests that most IBC applications are multimedia.

Advanced Services.

Advanced services now on offer and/or required by business can be classified in seven categories:

- Networking and Usage Facilities
- Integration of Services
- Value-added (Data Transmission) Services
- Advanced (Intelligent) Telephony
- Mobile Communications
- Document and Image Handling Services
- Distribution Services

Milestones for Implementation.

Based on European market expectations, results of collaboration in the framework of RACE and taking into account the pace of development, the following can be envisaged as representing the most likely/probable scenario:

1992/3
Early (mostly business, professional) applications, introduction and tests of emerging new services based on existing networks and possibly early prototypes of IBC equipment.

1994
Completion of linking-up all Member State capitals and with neighbouring countries, based on complementing existing and/or planned optical trunk networks.

1995
Initial IBC network implementation and completion of access for at least 50000 corporate customers throughout the Community. Field trials to test a representative range of IBC services (including residential customers) with 2-way video and commercial High Definition TV (HDTV).

OPERATION 1992
Advanced Communications-Technologies in Europe.

1996
Offer of basic broadband services based on 2, 34 and 145 Mbits per sec. links, including fast inter-LAN data transmission, desktop videoconferencing and videoprocessing, and CAD/CAM, as well as integration with other existing or planned networks (mobile communication and satellite networks).
1997
Offer of business access in towns >0.5 million inhabitants and start of widespread fibre-to-home implementation carrying full range of services to the general user.
2005 - 2010
50% penetration of IBC access.

The realisation of this timetable will make a major contribution to promoting the competitiveness of the European telecommunications operators, industry and service providers. They will make available to end users the services which will sustain the competitiveness of the European industry as a whole and contribute to maintaining and creating employment in Europe.

Many IBC experiments are already in-hand and Europe has an extensive optical trunk network which includes presently unused capacities to allow for future growth in demand.

Conclusions.

Since IBC was first defined as objective for the RACE Programme, there has been an important shift in perception. What seemed to be an excessively ambitious almost futuristic vision has in the last 5 years matured to a serious option which is considered to reach the market in the course of the next 5 years. Future work will therefore place increased emphasis on precompetitive and prenormative research associated with the understanding of advanced services and the assurance of quality of services. This will in turn require consolidation and selective extension of the corresponding technologies.

Overview of Proposed Work.

A. Structure of Proposed Work

1. Development and Implementation Strategies for IBC Systems, Services and Applications
2. Advanced Communication Technologies
3. Validation of Standards and Common Functional Specifications for IBC

B. Proposed Technical Research

1. IBC Developments
   a. Switching Systems
   b. Integrated Optical Systems and Networks
   c. IBC Customer Services
   d. IBC Software Infrastructure
2. Intelligence in Networks/Flexible Communications Resource Management
3. Mobile and Personal Communications
4. Image and Data Communications
5. Service Engineering
6. Information Security
7. Advanced Communications Experiments
   a. IBC Generic Application Strategies
   b. Techniques for Advanced Communications Experiments
   c. Advanced Communications Applications Experiments
8. Test Infrastructure and Interworking

The above information is based on the CEC Report of the same title (XIII/F/GE0182) which contains descriptions of all the Work Areas and Tasks arising from the above overview.

Further information from:

CEC
DG XIII-F
"Operation 1992"
Rue de la Loi 200
B-1049 Brussels

CrossTrade Europe 90

This conference, sponsored by the CEC under its SPRINT Programme (Strategic PRogramme for INnovation and Technology transfer), will be held on 25 - 26 October 1990, in Milan. The theme of the meeting is the use of technology with emphasis on IT in trade and commerce. The programme is aimed at benefitting the businessman and the trading community by presenting a bird's eye view of what IT can do to transform the operations of a company. To do this, the conference takes a major and extremely important sector as its model: dangerous goods and waste, from the moment of production to final disposal.

It is intended to report on all the latest IT techniques and solutions that can be adopted to lessen or eliminate the risks of handling these goods whilst proposing actions that increase the competitive edge of the company, be it in the productive, transport or service sector.

Particular attention will be paid to the strategic use of Electronic Data Exchange (EDI) as an instrument for radically changing the manner of business operations. Examples of the use of EDI which have drastically reduced costs and improved efficiency will be discussed.

An example is the movement of dangerous substances which may account for as much as 30% of all transported goods. Scheduling and traffic management can be optimised by correct use of the facilities offered by EDI in scheduling or allocation of means of transport, optimising of routes, etc. Access to databanks on territory, geology and places of storage can minimise environmental risks.

The four sessions of the conference are:

> Policy and strategy in the Community and the UN national and international programmes and developments

CrossTrade Europe 90

Key aspects of production, storage and transport of dangerous goods and substances
Transport of dangerous goods policy in the Community: Legislative and customs aspects
Use of technology and electronic data interchange. Access to databases and other information systems in Europe.

Further details and the full programme will be available in September 1990 from:
CrossTrade Europe 90
c/o XCOMS International
Via dell'Orsa Magiore 23
Cassina de Pecchi
Milano
Tel. +39-2-952-2102

OPEN SYSTEMS OPEN MARKETS

A conference of the above title was held in association with the Commission in Luxembourg on 7 - 9 May 1990. More than 100 senior managers from government organisations, business and software suppliers from Europe and North America attended this meeting which reflected the importance of open systems in supporting the growing trend towards global free trade.

Organised as plenary sessions and working groups concentrating on critical aspects for the future of open systems, the participants at the conclusion of the conference established a list of the ten most important issues in order of priority:

Human Computer Interface Standards
User Application Programme Interface (API) and Look and Feel
Enterprise Systems and Network Administration
The Need for Uniform Administration of Systems
Open Management of Heterogeneous Networked Systems
Distributed Data Management
Coexistence with Interoperability
Minimising the Cost of Porting to and Supporting in Open Systems Environments
Remote Data Access
Distributed Applications/Distributed Transaction Processing

These requirements can be grouped conveniently into four areas of activity:

User Interface - the need for similar appearance of applications based on a consistent look and feel and unified API. Meeting these needs will aid "people portability" for different systems in any one organisation, help with a smooth transition from current systems to Graphical User Interface based systems, improve ease of use, provide better integration capability and reduce costs.

Systems Administration - the ability to administer distributed heterogeneous systems in a consistent fashion.

Distributed Systems - the ability to access distributed databases and other information sources from local and distributed applications with an open systems architecture

Open Systems Leadership - the need for the standards community to provide information and services to support the migration and extension of existing applications and systems, and tools to facilitate the development of new applications.

These conclusions will be combined with interviews to be conducted by the conference organisers, X/Open Co., in Japan, with further in-depth analysis and review leading to open systems specifications to be presented in detail late in 1990 and publication of an Open System Directive in early 1991. The meeting and the work programme are supported by the Open Software Foundation and UNIX International.

Further information from:

P. TATE
X/Open Co. Ltd.
Apex Plaza, Forbury Rd.
Reading
Berkshire RG1 1AX
Tel.: +44-734-508311

OFFICIAL PRESENTATION OF THE EUROPEAN INITIATIVE FOR HIGH-DEFINITION TELEVISION (EEIG VISION 1250)

The European HDTV consortium Vision 1250 was formally launched by 14 major European companies, following its first board meeting, in Strasbourg on 11 July. A special event, organised by the Commission in association with the European Parliament and the Council of Europe, marked the operational start-up of Vision 1250.

Vision 1250, constituted at the initiative of the Commission, is one of the first European Economic Interest Groupings (EEIGs). The founding members of the EEIG are: BBC (U.K.), BHD TV (F.R.G.), British Satellite Broadcasting (U.K.), BTS (F.R.G.), France Telecom (France), Laser Creation (U.K.), Nokia (F.R.G.), Philips (Netherlands), OFRT (France), RAI (Italy), SFP (France), Thames Television (U.K.), Thomson (France), Unitel (F.R.G.). Many other companies are expected to join the consortium in the near future.

Vision 1250 will set up and manage both fixed and mobile HDTV facilities, to be made available to TV and

OFFICIAL PRESENTATION OF THE EUROPEAN INITIATIVE FOR HIGH-DEFINITION TELE-VISION (EEIG VISION 1250)

audio-visual professionals and broadcasters in the European Community. These facilities will include a comprehensive range of high definition equipment, operating to the European production and transmission standards which double the line density of today's 625-line TV pictures and provide digital-quality sound.

The introduction of HDTV in Europe from 1992 follows a five-point strategy decided by the Council of Ministers on 27 April 1989. The role of Vision 1250 in the European HDTV strategy was outlined by Commission Vice-President F.M. Pandolfi at a press conference on 11. July 1990, which was followed by a programme of HDTV demonstrations, open to the public. This featured a 30 square metre laser projection screen, making its first public appearance, and smaller versions of the 16:9 format TV screens of tomorrow. The demonstration programme also included an HDTV clip on Strasbourg and the European Parliament.

Further information;

VISION 1250
35 avenue de Lancaster
B-1180 Brussels

IES News would be pleased to receive free copies of books and other publications relating to computer networks, telecommunications and associated topics, for review, at the Editor's discretion

A review of "OSI Products" can be found on page 1 of this issue.

THE CCITT BLUE BOOKS

X.25, V.21 AND X.400 are three well-known examples of the family of Recommendations developed and published by the International Telegraph and Telephone Consultative Committee (CCITT).

This article provides an insight into the CCITT "Blue Book" specifications which have recently been published.

The CCITT process

The CCITT is an organisation within the International Telecommunication Union (ITU), the United Nations specialised agency responsible for telecommunications. The General Secretariat of the CCITT is located in Geneva. Organisations that participate in the CCITT work include telecommunications administrations and private companies which operate telecommunication services.

The technical work of the CCITT is undertaken by 15 "Study Groups" (SGs), for instance SG VII which deals with Data Communications.

The CCITT works in 4-year cycles, known as Study Periods. At the end of each Study Period, the current status of the technical work is published as a complete set of Recommendations, superseding the previous set.

The result of each 4-year Study Period is published as a series of individual installments, which are grouped into volumes and identified by the colour of the covers; the 1984 Recommendations were the result of the 1981-1984 Study Period and were published as the Red Books and the 1988 Recommendations from the 1985-1988 Study Period are known as the Blue Books.

Each instalment is published separately in three language editions, in English, French and Spanish.

Status of the Blue Books

The Blue Books will contain over 1500 Recommendations published in 61 instalments, grouped into 10 volumes according to subject matter; for instance, the I-series covers ISDN, and the V-series covers modems. The Blue Books total some 18,500 pages, which represents an increase of approximately 80% on the Red Books.

It should not, however, be assumed that the publication of the Blue Books means that the Red Books are automatically obsolete, as most of the real products implementing the Recommendations will be in conformance with the Red Book version, not the Blue Book.

Although the CCITT output documents are termed "Recommendations", they are effectively standards because that is how the industry treats them. There is no real difference in status between an International (ISO) Standard and a CCITT Recommendation other than semantics and tradition. Adoption of the specifications in both ISO and CCITT publications is "voluntary", but it is market forces that determine what will be implemented. Because the CCITT Recommendations are such a major influence with telecommunication technicians within administrations, manufacturers and users throughout the world, they are widely specified by those involved in designing and procuring telecommunication systems.

A summary of some of the technical changes in the Blue Books follows:

The I-Series Recommendations for ISDN were considerably expanded from the Red Books to the Blue Books. A broad summary of the I-series is given below:

THE CCITT BLUE BOOKS

General Structure and Vocabulary for ISDN: The I.100-series serves as a general introduction to the concept of ISDN. This series also hosts information common to other I-Recommendations.

Service Capabilities: The I.200-series provides a classification, and method of describing telecommunication services that are supported by an ISDN. They also are the basis for defining the network-required capabilities.

Overall Network Aspects and Functions: The I.300-series outlines the functional principles of the network aspects of the ISDN. They also define the ISDN capabilities for supporting services via interfaces in terms of functions. This functional description enables a decoupling of services and ISDN capabilities, and therefore allows an implementation-independent approach.

ISDN User-Network Interfaces: The I.400-series describes both the functional and technical aspects of user-network interfaces. This user-network interface lies within the customer premises.

Intermediator Interfaces: The I.500-series describes in detail the interworking functions (IWFs) between ISDN and dedicated networks for coping with the different environments given by the various networks.

Maintenance Principles: The I.600-series describes the applications of maintenance principles to the ISDN subscriber installation, basic accesses, primary rate accesses and static multiplexed ISDN basic accesses.

X.25: The Blue Book version of Recommendation X.25, which specifies the connection of data terminal equipment (DTE) to public packet-switched networks, was expanded in several areas, although the changes were not as extensive as those made in 1984 and published in the Red Books. Essentially, the changes fall into three basic categories:

- Support of the OSI Connection-mode Network Service
- Compatibility with ISDN
- Generally useful features

X.400: The Message Handling Systems (X.400-series) Recommendations have been extensively restructured and enhanced. In particular, X.401 Basic Service Elements and Optional User Facilities and X.430 Access Protocols for Teletext Terminals have been deleted from the X.400-series, although Recommendation T.330 now covers access by Teletext and G4 facsimile to the IPMS. The two draft protocol specifications, X.412 and X.414, were combined into a single Recommendation, X.419 Protocol Specifications, in the Blue Book. The Red Book Recommendations for ASN.1 (X.409), and Remote Operations and Reliable Transfer (X.410) have been transferred to the X.200-series in the Blue Books as X.208/209, X.219/229 and X.218/228, reflecting their wider applicability. The X.400-series is largely aligned with the ISO draft standard for message handling, DIS 10021 Message-Oriented Text Interchange System (MOTIS).

X.500: The X.500-series Recommendations for Directory Services, which did not exist in the Red Books, define a basic model and the protocols to operate a directory system. The system will permit the database containing the directory information to be distributed on a worldwide basis. Each organisation implementing a directory system will have a database holding the directory information of the organisations and/or customers it serves and may have access to those of other organisations. The directory database will be able to hold both the traditional directory information (e.g. telephone numbers), and information required for OSI-based distributed applications such as message handling.

X.400 and Electronic Data Interchange (EDI): During the 1985-1988 Study Period, significant enhancements were made to the MTS and there was recognition of the need for definition of new content types, in particular, X.400 was becoming recognised as being an excellent communication infrastructure to support the transmission of Electronic Data Interchange (EDI) messages. CCITT therefore authorised an "Interregnum" activity in the Autumn of 1988 to study X.400 support for EDI.

The CCITT accelerated procedures are likely to be invoked in order to publish two Recommendations before the end of the 1989-1992 Study Period. These are expected to be X.edi1 (this is a temporary designation for identification purposes) on architecture, containing the model for the EDI Messaging System (EDIMS), EDIMS Naming and Addressing and use of Directory, and EDIMS security. X.edi2 will contain the Abstract Service Definition.

Further information and list of available instalments from:

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NEWS from SPAG

(Standards Promotion and Application Group)

MHS (Message Handling System) Conformance Testing

Following an independent test audit by NAMAS (National Measurement Accreditation Service, U.K.), SPAG has been awarded accreditation for MHS Conformance Testing for OSI in line with the EN 45000 series of standards. This is the third issue in Europe, but the first issued by NAMAS and represents an important step towards creating a multivendor market for OSI conformant X.400 products.

The skills involved in completing such an audit in one pass are a noteworthy achievement as the European 45000 criteria for operating a test laboratory were only adopted by CEN/CENELEC in September 1989.

The exhaustive study by NAMAS concluded that the SPAG test service and laboratory meet fully the requirements of the EN 45000 series of standards for test laboratory procedures.

The knowledge acquired from this and previous accreditations (the accredited status for MMS (Manufacturing Message Specification) was reached in June 1989, and the DS (Directory Services) test service achieved this status in May 1990) should help SPAG reach its stated aim of FTAM (File Transfer and Management) and Network Management Forum accreditation by late 1990 or early 1991.

Network Management Conformance Tools

The OSI/NMF (Open Systems Interconnection/Network Management Forum) at its annual meeting on 15 June 1990 held in New York announced the completion of its Release 1 Technical Programme, which includes Network Management Conformance Tools. The implementation of Release 1 means that any element in a network can be represented. Users can see network composition, obtain network status and make network changes across vendor systems as easily as within single vendor systems. Thus a system can create an end-to-end view of a network or obtain the current configuration of a network element managed by another system.

A programme of tangible demonstrations, the Network Management Showcase, to show that vendors are implementing the Forum's specifications has been planned for Europe and North America for the next twelve months commencing September 1990. Release 1 represents a complete set of specifications and conformance test tools for both Fault and Configuration management. This comprehensive package has design specifications, implementation conformance statements and conformance testing requirements. Specific documents include protocols, application services, architecture the object framework, object library, shared management knowledge, naming and addressing and conformance testing requirements.

Today's availability of a suite of Network Management conformance test tools developed jointly by SPAG-CCT in Europe and COS (Corporation for

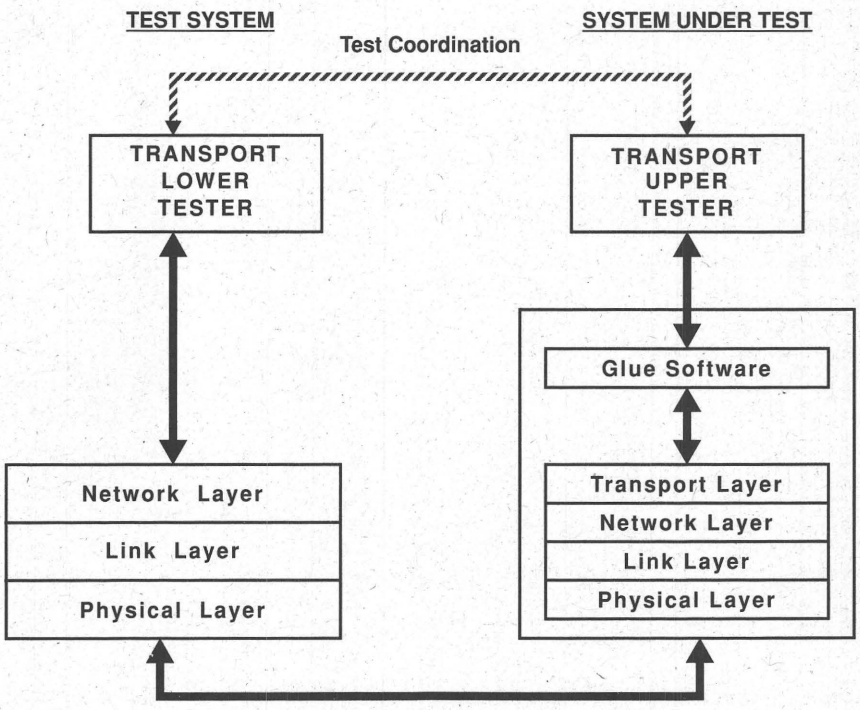

Fig.1 : Test Configuration for "Transport - TOOL"

NEWS from SPAG

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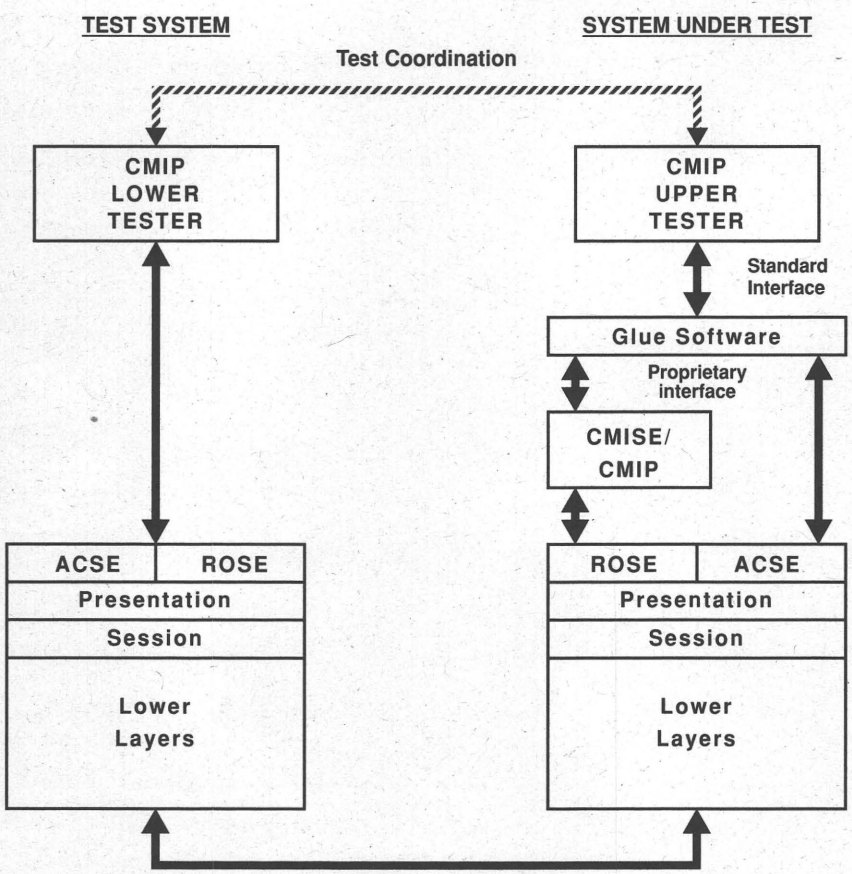

Fig. 2 : Test Configuration for "CMIP - TOOL"

Open Systems) in the U.S. is the fruit of a major collaboration agreement concluded last year with the OSI Network Forum.

As far as SPAG is concerned, the agreement ties in with its mission to promote interoperability between multivendor products, based on internationally standardised Open Systems protocols. Both SPAG and COS see the Forum as having a major influence on the development of Network Management protocols based on Open Systems, and hope that by joining forces they can accelerate standardisation work in this area.

All of SPAG's shareholders are members of the OSI/NMF and all see SPAG's activities in tune with those of the Forum as accomplishing the SPAG mission. Through the TAC (Test Advisory Committee) and STC (SPAG Technical Committee), representatives from SPAG have the opportunity to be involved at an early stage in the review of Forum documents, enabling consensus position to be taken on a variety of NM issues. One example of how COS, SPAG and the Forum together supported the interests of SPAG shareholders is the promotion of an early ISP (International Standardised Profile) for CMIP (Common Management Information Protocol).

Apart from fulfilling SPAG's objective in the standards arena the agreement also helps further another part of SPAG's mission, namely to create the right environment to accelerate the availability of interoperable products.

As a first step, the triumvirate is addressing the problem of conformance and it is here that COS and SPAG have offered guidance and expertise based on years of experience. Conformance testing is seen as an essential prerequisite to interoperability. The NMF/COS/SPAG Technical Interface Group has already gone a step further by establishing a direction and action programme to address interoperability testing for Network Management implementations.

Network Management Conformance Testers.

Under the terms of the agreement, a suite of conformance test tools has been developed by SPAG-CCT in Europe and COS in the U.S. capable of testing the CMIP, Network Management and Transport protocols.

The CMIP Tester developed by SPAG-CCT uses the coordinated method of testing (Fig. 1) and is available with a suite of tests in accordance with the NMF protocol specifications as agreed in June 1990 which take into consideration the recent changes in status of CMIP from the draft (DIS) to fully recognised international standard (IS0 9596).

The Network Management tester developed by SPAG-CCT can test implementations in either Manager (Fig. 2) or Agent mode (Fig. 3) using the distributed and remote test methods - again in support of the June 1990

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(Standards Promotion and Application Group)

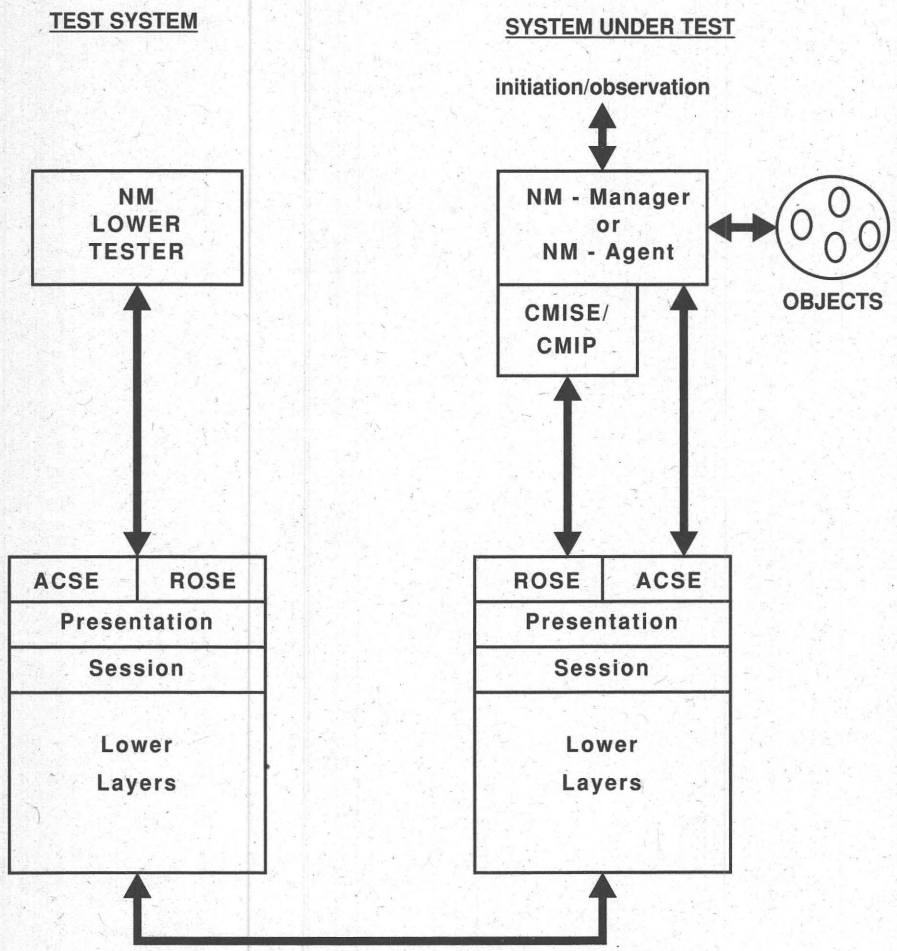

Fig. 3 : Test Configuration for "NM-TOOL"

NMF specifications. The test cases are being written by Forum members but will be distributed and maintained by SPAG-CCT.

The Transport Tester developed by COS is an extension of the existing COS tester and tests Transport according to OSI - NMF profiles.

At present the SPAG-CCT testers are undergoing validation testing with two IUTs (Implementations Under Test). Demonstrations of the tools have generated much interest among Forum members and it is hoped that the first Showcases in 1991 will be able to demonstrate conformant if not interoperable NM products.

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The Open Systems Testing Consortium (OSTC) Annual Meeting 1990

In September 1990, OSTC, which evolved out of the Commission-funded CTS-WAN (Conformance Testing Service for Wide Area Networks) will be just over one year old. During this time, much experience has been gained in the operation of harmonised test laboratories and the validation of new tools and services. This technical work has been carried out steadily against a background of increasing awareness by manufacturers, public procurement offices and users of the value of the harmonised testing facilities available.

The findings and experience are to be presented at this meeting, to be held in Cambridge, 19 - 20 September 1990. OSTC intends to report these to the OSI community in a frank and open way with a view to providing competitive economic solutions in conformance testing reflecting market needs, now and in the future.

Topics to be discussed include the role of OSTC in implementing and promoting open testing, the role of standardisation in conformance testing, the European plans for IT testing and certification, the scene in the U.S., Japan and elsewhere, validation procedures and European certification, with speakers from the Commission, ETSI, NCC and other major organisations throughout the world.

Full particulars are available from:

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Fax. +44-61-228-2579

Introduction to CTS
(Conformance Testing Services)

Information technology and telecommunications (I T&T) are playing an increasingly essential role in answering the need for open exchange of data and information. Furthermore, the achievement of a European single market will rely on a transborder flow of information and removal of technical barriers to trade.

Increasingly, during the past years, efforts have been devoted by the European Community to develop the key ingredients required to promote the objectives of economic integration in this field.

Testing and certification represent the key component, essential to the achievement of Community standardisation policy. It will reinforce the policy by lending credibility and confidence to products that conform to standards. In fact, in the IT&T field, the complexity of standards is magnified to a degree where it becomes difficult, if not impossible, to implement the standards without creating technical divergences which will ultimately result in a lack of interoperability. Therefore, the need for an adequate guarantee that products conform to standards emerges as a decisive condition for building up confidence in standard product interoperability.

Customers, users, producers of IT&T goods and services will all benefit from conformance testing, i.e. an objective assessment which will ensure that the products meet the adequate requirements for guaranteeing the interchange of data and information. Consequently, in 1985, the Commission of the European Communities launched the Conformance Testing Services Programme (CTS) to provide tools and facilities to meet the growing market requirement for testing services as a means of paving the way to an open market for truly interoperable IT&T systems. At the time, there was only limited activity in this area. A few testing services did exist, or were in the process of being established. While individually they were valuable, their collective impact fell far short of fulfilling Community policy on testing and certification and they were isolated initiatives.

The timing was obviously right for a combined effort. The need was clear, whilst enough had already been learned to enable sound decision-making. Investment had not yet reached the levels where change for the sake of harmonisation would be difficult or impossible, while it was apparent that the task was so large that the mobilisation of centres of excellence throughout Europe was essential.

The programme has been phased in four overlapping stages, known as CTS-1, CTS-2, CTS-2bis and CTS-3, each launched through a "call for proposals" within two-year intervals. Community funding is provided for approximately 50% of the costs. Following the launch of the programme, the intention is that the established testing services should be progressively self-financed from testing fees.

The third phase (CTS-3) has just been launched and the corresponding call for proposals is still open. This covers principally telecommunications standards which have most recently come to maturity.

Parallel to the CTS Programme, a complementary plan for IT testing and certification in Europe is under development by CEN, CENELEC and ETSI. This has produced, as a first step, the setting up of the ECITC, which is the European Committee for IT Certification, whose members, each representing a certification coordinating authority within each of the Member States, have signed a memorandum of understanding to set up "an operational and unified framework in which testing laboratories and certification bodies can enter into and benefit from mutual recognition arrangements for certificates and test results covering IT products or services, on the basis of harmonised rules and procedures". Intensive activities are currently under way at European and national levels to identify the role of the different components of the European IT testing and certification system and to specify the interfaces between them; the different functions - testing, accreditation, certification - are taking form, establishing mutual dependency and composing together a puzzle where each element complements and justifies the other.

The principles

The role of conformance testing is to reinforce the credibility of standards, to create the confidence customers need to invest in standardised products, the confidence in the fact that these standards are capable of maintaining their promise of multivendor systems interoperability.

Credibility of standards will not be achieved until it is possible to verify that products which claim to be "standardised", really are so. This can be ensured through reliable verification and the availability of independent third-party testing services gives an added guarantee.

Furthermore, to be commercially viable, the verification must be *recognised* in all European countries and beyond, thus avoiding retesting. Finally, in order to be fair, it must be based on procedures and test sequences which are well known, publicly available, and *harmonised.*

Introduction to CTS
(Conformance Testing Services)

So, the basic idea of the CTS Programme is to establish testing services capable of verifying the conformity of IT products to IT standards, based on the principles of
- independence
- mutual recognition
- harmonisation.

The above principles have been implemented through a series of practical rules which have been contractually agreed with the suppliers of the testing services participating in the CTS Programme. They are the following:

- There should be one set of tests for any given technical area throughout Europe, and these tests should be internationally standardised through the standard-making process.
- There should be a common technical authority for a given set of tests.
- The procedures and documentation (especially test reports) should be the same in all cases.
- Every test service should be offered in at least two Member States (and preferably more).
- The services should be made available regardless of the country of origin of the product.
- There should be mutual recognition of test results among countries, at least within Europe and preferably world-wide. A product tested in one country should be accepted without retesting in another country.
- There should be competition in the provision of testing services. The availability of alternative sources for the test contributes to an increase of competitiveness and to availability and efficiency of services.
- The tests should be grouped according to the needs of the producer and hence also the supplier. If conformance to several interrelated standards is needed for the performance of a given user-perceived task, then the tests should cover the full set of standards.
- Such multi-standard testing services should cover the European functional standards (EN or ENV) and the international standards referenced therein.
- Test centres should have sufficient independence to function as third-party test laboratories.

Considerable progress has been made towards the realisation of the CTS Programme, with no sacrifice of any of its principles. It is a matter for real satisfaction that in IT it has been possible to do what has rarely been achieved in other sectors; to ensure testing is performed on a genuine European basis.

The results

The CTS Programme started in 1985. The first phase (CTS-1) was completed in March 1989 and the corresponding services are in place: they cover primarily the major areas of OSI and give priority to the testing of conformance to the European functional standards (ENVs).

By launching the second phase (CTS-2 and CTS-2bis), the scope of the programme has been broadened to complete OSI and go beyond it in the IT field, involving all the Community Member States. Furthermore, the CTS Programme has been conducive to the development of a very satisfactory level of cooperation with the EFTA countries and other regions of the world. A complete list of the technical areas covered is provided in Figure 1. Projects belonging to the second phase are expected to be completed by 1991. At that time, about 40 test centres will be operational in Europe.

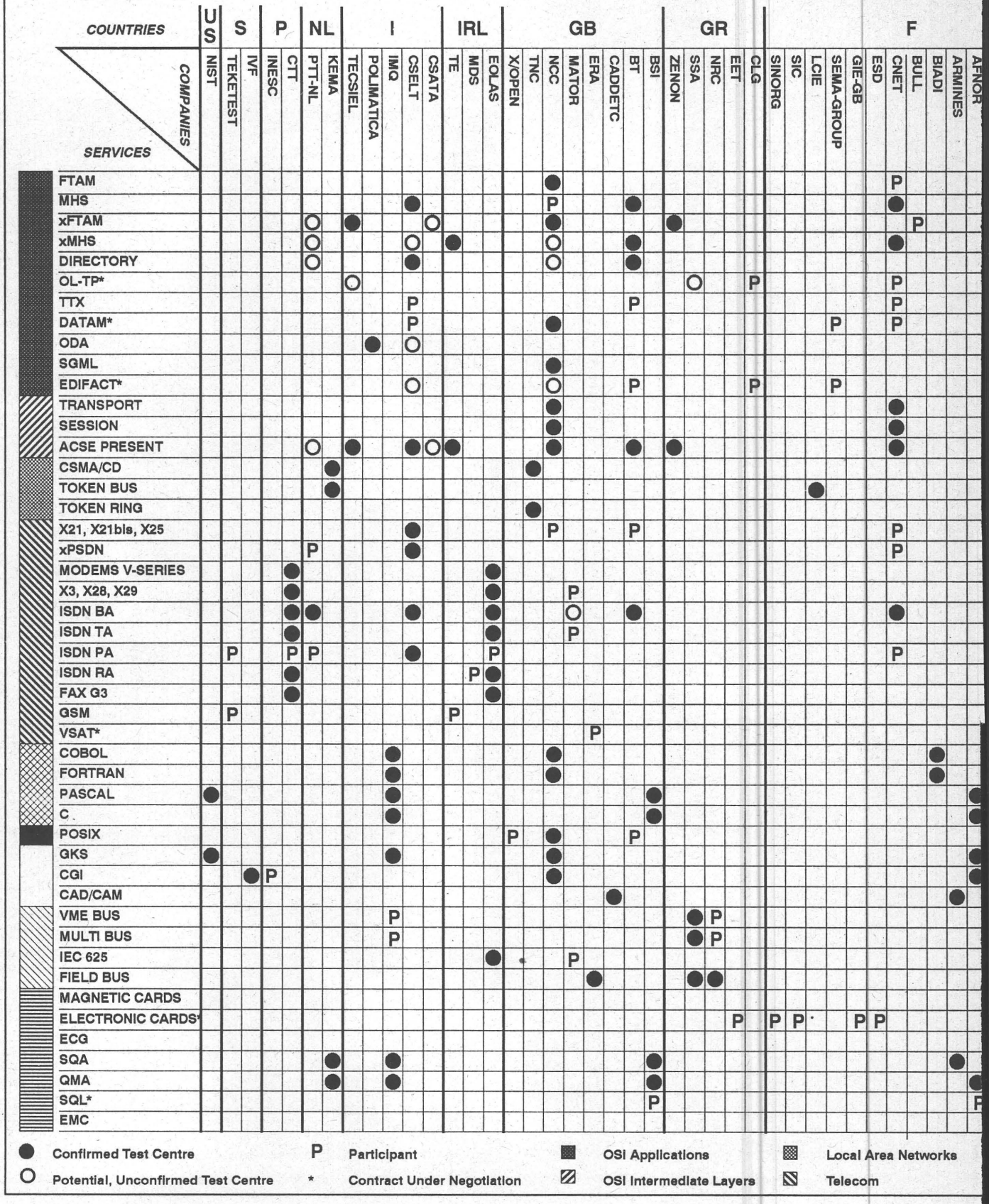
The services are each established in at least two Member States. A requirement for funding a service is that the service shall be offered in at least two Member States. It should be mentioned that although only two sites are funded by the CTS Programme, the number of laboratories offering the test service might be larger. This is the case, for example, with the MHS testing services, which are offered across seven countries for the benefit of customers and the economic viability which has been mentioned earlier.

Attention should also be drawn to the fact that test services related to a given standard are not necessarily identical, but are expected to give identical results. They are often based on different technologies, coming from pre-existing investments, or developed in parallel, with different test engines and different software. But they are harmonised in the sense that they apply the same procedures, the same test report format and, even more importantly, the same sequence of tests for a product under validation. This means that a customer has a coherent and harmonised perception of the service, no matter what entry point is chosen in the pursuit of same services.

It has to be noted that the technical consistency, harmonisation, and mutual recognition of the test reports among the centres are the result of a contractual obligation, established at the time when the consortium of companies commit themselves to establishing the services. In order to ensure that those qualities are maintained beyond the duration of the contract with the CEC, the centres arrange among themselves, within the framework of ECITC, recognition arrangements, aimed at ensuring the technical consistency of their services and the mutual recognition of test reports.

Finally, it is worth mentioning that for each technical area above the CTS testing centres supply, not only third-party testing, but also renting/selling of test tools for in-house pre-testing or

WHO'S WHO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MODEMS V-SERIES
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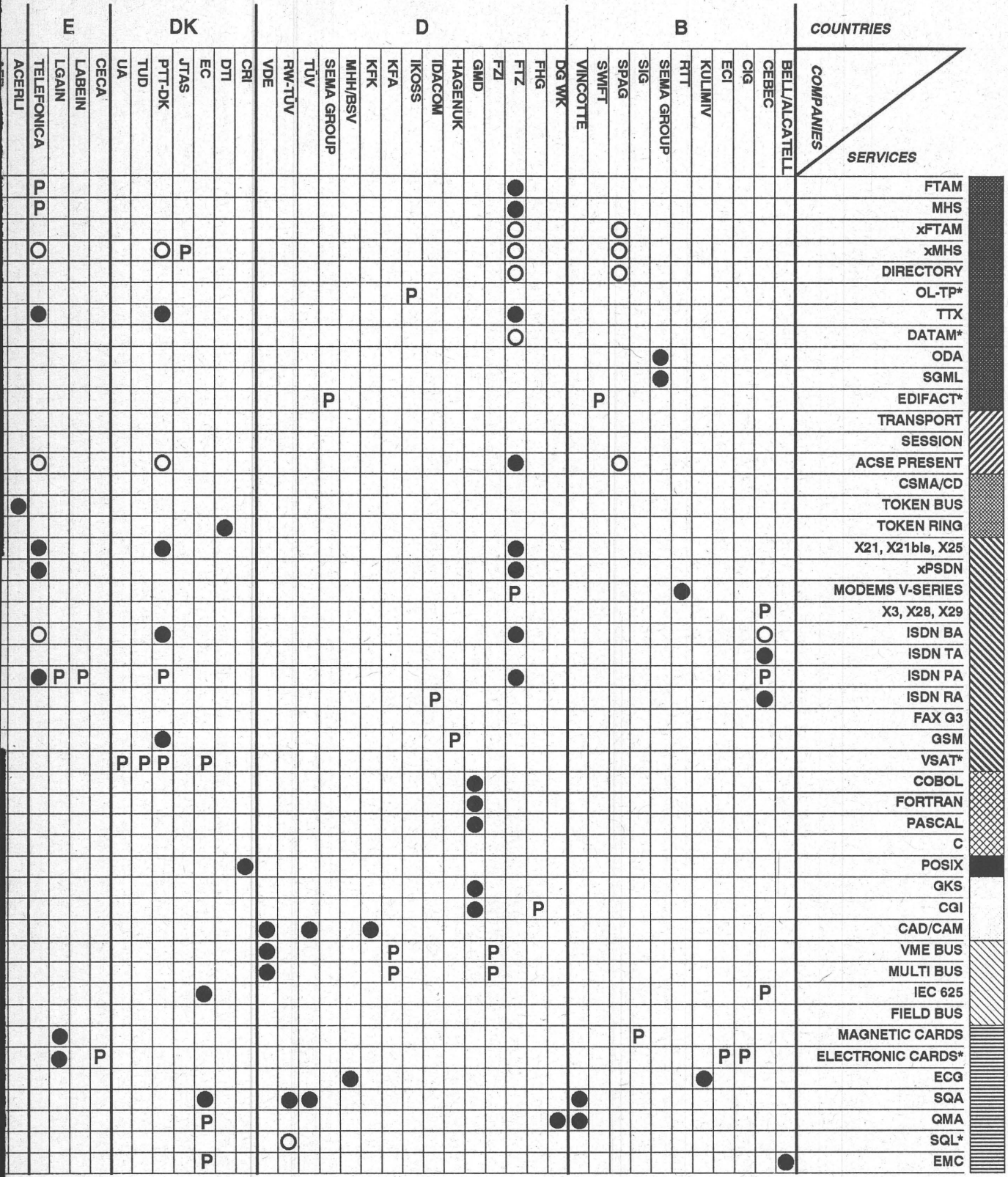
SQA
QMA
SQL*
EMC
Confirmed Test Centre
Potential, Unconfirmed Test Centre
P Participant
* Contract Under Negotiation
OSI Applications
OSI Intermediate Layers
Local Area Networks
Telecom

I N C T S



Language Compilers
Operating Systems
Computer Graphics
Databuses
Others

N.B. Not all the Confirmed Test Centres have been granted accreditation at present

Introduction to CTS
(Conformance Testing Services)

first-party testing, licence provision on development of other test facilities or establishment of testing services elsewhere, validation of test tools other than the ones adopted by the programme, test documentation, consultancy and arbitration.

Conformance testing and certification

It is essential to clarify what is meant by these terms, since they are not always used consistently.

Conformance testing is a technical task. It consists of the testing of products to determine whether they meet the requirements defined in a standard. The tests can be carried out by the supplier of the product (first-party testing) or by an independent body (third-party testing).

Certification is essentially an administrative task, i.e. awarding the product a certificate if it satisfies the tests of conformity to the standards.

The criterion for being satisfactory is not only that tests have been passed successfully, but that the tests themselves are considered to be adequate and the test laboratory is considered to be adequately competent and impartial.

The CTS Programme provides a valuable technical contribution to support the IT testing and certification scheme which has been developed by CEN, CENELEC and ETSI according to Memorandum M-IT-03. Member States have already well-established certification schemes covering many industrial sectors, often backed up by schemes for accreditation of test laboratories. What matters is that the schemes provide equivalent confidence levels and that certificates are mutually recognised.

The European Committee for IT Certification (ECTIC) has therefore been set up, with the task of coordinating the national actions and ensuring compatibility and mutual recognition of test certificates. The issue of certificates will be on a national basis.

The link between the CTS test laboratories and the IT testing and certification system is implemented through the "recognition arrangements" approved by the ECTIC. The ECTIC acts like an umbrella under which different recognition arrangements (one for each technical domain) are concluded and set in place. A recognition arrangement is an agreement in use between testing centres in a given IT domain leading to mutual acceptance of test results. A recognition arrangement is submitted to and approved by the ECITC. Some recognition arrangements currently submitted to the ECITC for inclusion into the IT testing and certification system are covering OSI wide area network testing services, and MAP and TOP, promoted respectively as OSTC (Open System Testing Consortium) and ETCOM (European Testing and Certification for Office and Manufacturing Protocols). Others are expected to come into existence for other technical areas, such as data bases and language compilers.

The recognition arrangement defines the rules for ensuring continuous harmonisation and maintenance of testing services in a particular technical domain. It represents the central point in Europe for technical coordination of all existing and future test centres in a given IT domain, and it represents the technical authority for:

- maintenance of test specifications
- arbitration
- validation criteria of new technologies for testing.

It should be emphasised that the European IT testing and certification system is still under development. Further joint work is necessary to establish and operate appropriate European accreditation and certification schemes. However, through the recognition arrangement, the CTS testing centres provide a commitment to maintain accredited services under the final certification scheme.

The future

The future of the CTS Programme moves in two directions. On one side we have the broadening of the current scope through the recent "call for proposals", which is mainly launched to expand into new telecommunication areas, where ETSI standards are coming to maturity. On the other side, a gradual transfer of responsibility is planned and is already under way. The Commission, which launched this initiative and has provided about ECU 40 million in support funding for CTS up to now, will gradually bow out. The responsibility for matters such as test specifications is being entrusted to the European standards bodies, with an increased participation of the EFTA countries.Commercial responsibility will pass into the hands of the organisations offering testing services. In the meantime, the European plan for Conformance Testing & Certification in IT is gaining consistency and strength, consolidating the existing scheme and open to cooperation agreements, fostering a world-wide, truly interoperable open systems market.

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COSINE NEWS

Cooperation for Open systems Interconnection Networking in Europe.

COSINE News intends to cover viewpoints of all parties with interest in COSINE.

ACCESSING IXI

The Pilot international X.25 infrastructure (IXI) was officially inaugurated on Friday, 8 June 1990 by the Commission of the European Communities (CEC) and PTT Telecom of the Netherlands.

The IXI Pilot Service is the first major activity of the EUREKA COSINE project implementation phase. The service provides packet switched data communications at an access speed of 64 Kbit/s. The ability to access the IXI service at such a speed and with consistent quality of service throughout the COSINE countries makes the availability of the IXI service a major milestone in European research networking.

Usage of the Pilot Service is restricted to the COSINE community of researchers including industrial research departments, and governmental and Commission agencies concerned with R&D. The Pilot Service is available to users approved by the CEC and PTT Telecom.

Researchers wishing to use the IXI Pilot Service should contact their national Coordinating Committee (CC) representative listed below:

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Analysis of the COSINE Invitations to Tenders

An analysis of the number of responses by country to the recent invitations to tenders for 5 COSINE Sub-Projects and Services, i.e. Pilot FTAM Gateway to the U.S.A. (P1.1.), Pilot Directory Services (P2.1), Pilot Support and Information Services (P2.2), Interworking of Existing X.400 Domains (S2.1) and MHS Gateway Service to the U.S.A. (S2.2) is shown in the table below:

Tenderers for 5 COSINE Sub-Projects and Services

Country	Principals		Collaborators		Total
	Ind.	Res.	Ind.	Res.	
Belgium	3	0	0	1	4
Denmark	1	0	0	0	1
France	5	0	0	0	5
Germany	6	1	2	1	10
Ireland	0	4	1	0	5
Italy	0	2	0	0	2
Netherlands	5	0	1	0	6
Norway	0	1	0	0	1
Switzerland	0	1	0	0	1
United Kingdom	6	3	2	3	14
Total	26	12	6	5	49

Notes:

1. *"Research" category includes companies which have the same address as an university or research organisation.*
2. *Netherlands companies are the Dutch branches of European and U.S. multinationals*
3. *Industrial principals include two PTOs.*

COSINE Users' Forum

The principal aims of COSINE Sub-Project P3 are to investigate the communications needs of particular user groups, to feed the results of these investigations into the detailed planning of COSINE services and to establish a support structure for COSINE user groups.

The interim CPMU (COSINE Project Management Unit) has produced a draft Activity Plan for this sub-project which is being submitted for comment to the next RARE (Résaux Associés pour la Recherche Européenne) Working Group 3 meeting in September 1990. An updated version of the Activity Plan will then be submitted to the COSINE Project Officer for formal approval and will be widely circulated.

The COSINE Users' to be held from 14.00 to 17.30 on Wednesday, 14 November 1990 as part of the ESPRIT Conference, will provide an opportunity for the proposals for this Sub-Project to be explained and discussed in more detail. Representatives of the appropriate users groups will be invited to make short presentations of their activities and aspirations with respect to the use of the COSINE services. Anyone wishing to offer a contribution should contact:

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The 1991 RARE/EARN Joint Networking Conference

Please note in your dairies that this event will take place at Blois, France from 13 to 17 May 1991.

EuroKom User Survey

EuroKom users will recall that a major survey of all users was carried out in recent months. Although this was not the first survey conducted, the response surpassed all expectations. A maximum of three to four hundred replies had been anticipated, but the final count reached almost 700. This was no doubt due to a number of factors:

- expert help from the Open University with the design and preparation of the questionnaire,

- combining an on-line system with a hard copy survey form,

- the incentive of a free lap-top PC.

The results will be most useful, both in the short term, as further developments of the PCU (Personal Computer Utility) are planned (see IES News No. 28) and in the long term, in anticipating the possibility of providing a conferencing functionality at the PC level. In general,

- given the power and price of current PC hardware technology,

- the recent developments in the area of graphical interfaces and windowing software (in particular Windows 3.), and

- user feedback from the questionnaire and through the Help-Desk and user support services,

the end-user will be less and less interested in signing on to a remote host and conducting Conferencing sessions on-line. Today's user of work-stations and Personal Computers expects:

- conferencing traffic to be delivered, ideally in a form that will integrate with the desk-top environment, and

- ability to process the conferencing traffic locally, using a local environment user-interface, and then pass the output of this processing back, in a simple and transparent way, to the host or LAN (Local Area Network) server.

Looking ahead at such developments, a vital input to EuroKom's planning has been in analysing the type and power of systems used by the EuroKom user community. One area of concern was that in developing future plans based on todays technology, a large proportion of users might not keep pace with technological developments, and would therefore be excluded from the sort of end-user environments seen as being feasible in the early nineties.

However, it was an agreeable surprise to discover that EuroKom users were keeping pace with new developments and were upgrading to more powerful equipment and software at a much faster rate than the conventional business market. With hindsight, it should follow that users of Conferencing would probably keep pace with new developments at the hardware and software level too.

A summary of the survey findings will be of interest to our users/readers:

Equipment supplier:
Of Personal Computers, Olivetti had the highest representation, followed very closely by IBM. Compaq were quite a long way behind.

Terminal users:
PC users represented 70% of the responses and terminals to local systems 15%. Of the latter, terminals to DEC systems led with 60% of the users. All other terminal users were 5% or less for Sun IBM, Prime, Xionics, ICL, MARI, RC, NCR and Bull.

Work-station users:
Of the work-station users, Sun and Macintosh shared first place each with 45%. DEC came next with 4%. HP (including Apollo), Siemens, IBM, Nokia and Wyse shared the remaining 6% equally.

Operating systems:
DOS led with 65%, followed by Unix with 14% and VAX VMS had 9%. The Macintosh operating system was 6%. Following those four leaders was a variety of 35 other operating systems. The trend in this regard was interesting because DOS is certainly growing much faster than all the other contenders, and earlier surveys would have shown DOS at a 30 to 35% level two years ago.

Access methods:
A large group of participants will be contacted to double-check their replies, due to an apparent contradiction in the number of LAN users. It would appear that not only do people use a LAN, but also have a modem installed for use of external services. Although this is quite feasible, it is surprising that a high number of people take this expensive approach.

If the responses ARE correct, 65% of users use LANs. Of those using modems, 35% used 2400 baud, 30% used 1200 baud, 17% used 9600 baud, and 2% used 300 baud.

Communications software:
Kermit led with 19%, followed by Procomm with 14%, Crosstalk had 12%, and others between 2 to 3%.

EuroKom User Survey

Use of editors:
MS-WORD led with 26%, followed by Word Perfect with 16%, Vi and Wordstar had 8% each, EDT and EMACS were 4% and 5% respectively and others 1 to 5%.

Word processors which users would like to see available on the EuroKom host were EMACS (16%) and vi (10%), with EDT and MS-WORD a joint 6%. The take-up of the two editors recently installed on the system (vi and EDT) will be interesting in the light of these findings.

The new menu system:
The proportionate use of the menu system was of special interest; 61% used the menu system as a routine, 15% used it occasionally and the remaining 24% had problems with their local emulator, but would otherwise use the menu system by choice.

Use of services:
It was an interesting validation of the survey results, that the proportionate use of the various services, matched the statistics found in the internal service accounting. This implied that the sample of users is quite typical and representative. The percentage time spent on each service was as follows:

Mail/Conferencing	**83%**
File Transfer	**9%**
Unix News	**4%**
Databases	**4%**
Total	**100%**

The above is a brief summary of a detailed and extremely interesting exercise, which will prove useful for many months to come. The care and interest taken by so many participants indicates that such surveys should be more frequent. Two per year are being considered. Even with that frequency, trends in hardware, software, and access methods could show significant changes from survey to survey. An incentive to the first valid reply drawn out of a hat will of course be available on each occasion.

EuroKom would like to take this opportunity to sincerely thank everyone who participated. The information gathered about the user environment, the assistance and insight provided have been invaluable and will be reflected in future service enhancements, making EuroKom a more user-conscious and user-driven service and organisation.

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European User Event

ECTUA (European Council of Telecommunication User Associations) is holding, with CEC, EFTA, CEPT and ETSI support, the Third User Event devoted to **ISDN in Europe** in Brussels, 20 September 1990.

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EUROPEAN TELECOMMUNICATIONS DIRECTIVES

Two directives in the telecommunications sector have been issued by the Commission.

The directives are:

- the open network provision (ONP) framework directive, which facilitates access of private companies to the public networks and certain public telecommunications services;

- the Article 90 telecoms services directive, which establishes the right for independent undertakings to offer new services on the telecommunications network.

The ONP directive was adopted by the Council of Ministers on 28 June 1990. The Article 90 directive was a modification of the text agreed by the Commission in June 1989. The two should be seen in parallel. Until now, the provision of pan-European services has often been made impossible by the absence of harmonised technical interfaces, by divergent conditions of use or discriminatory tariff principles. The ONP directive lays down the principles for creating a European market by harmonising technical interfaces, it outlines conditions for supply and usage and proposes the harmonisation of tariff principles. Technical harmonisation will be achieved in close collaboration with the European Telecommunications Standards Institute (ETSI).

The telecommunications industry has often found it difficult to provide new or alternative services on the existing national networks due to the existing monopoly rights which vary from country to country. The Article 90 directive limits the exclusive

EUROPEAN TELECOMMUNICATIONS DIRECTIVES

rights which can be given to the telecommunications monopolies, confining them to control of the basic network and voice telephony. This means that in future independent suppliers will have a guaranteed right of access to the national networks for new and developing services. This provision takes immediate effect for all value-added services. The resale of leased line capacity may be restricted until the end of 1992.

The ONP directive

The major features are:

1. Technical interfaces and service features will become the subject of European standards to be adopted by ETSI, which will be of a voluntary nature. However, there is a presumption in favour of those who comply with the standard, i.e. service providers complying with that standard will be able to offer their services throughout the whole Community.

2. If the working of this presumption in practice does not suffice to guarantee the interoperability of transfrontier services within the Community, the Commission can make the reference to the standard concerned mandatory to the extent strictly necessary to ensure interoperability and to improve user freedom of choice.

There will most probably not be any mandatory standards for value-added services since the above procedure was conceived for application to basic services such as packet-switched data transmission and the ISDN.

3. Since the Commission will have to improve the freedom of choice for users when making reference to a European standard mandatory, this will not prevent a company that offers services related to mandatory standards also from offering other services.

4. The ONP Directive is a "framework" directive, to be followed by directives on specific issues. In this context the Council decided on the work programme in the field of ONP for the next years. In particular, this programme provides that:

there will be specific ONP Directives for leased lines and voice telephony;

by 1 January 1991, technical interfaces and services features concerning packet-switched data transmission and the ISDN will be established and could be made mandatory according to the procedure mentioned above;

ONP conditions will be adopted in the form of recommendations by 1 July 1991 and 1 January 1992 for packet-switched data transmission and the ISDN respectively;

the Council will examine Commission proposals in 1992 and thereafter by which the recommendations mentioned above would be transposed into directives.

The Services Directive

On 28 June 1989, the Commission had adopted a first draft of the Services Directive on the basis of Article 90(3) of the Treaty. However, the Commission postponed its entry into force so that the Council of Ministers would have sufficient time to adopt the ONP Directive. Thus, the Commission wished to see the Services Directive entering into force on the same day as the ONP Directive.

The basic concept of the Services Directive is as follows:

The exclusive or special rights of the PTTs in the field of telecommunications services have to be abolished, with the exception of voice telephony and the network infrastructure. The Directive does not apply to the telex service and allows the Member States to prohibit the simple resale of capacity of leased lines for a transitional period ending, in principle, on 31 December 1992. As soon as this Directive enters into force, private service providers will be able to offer value-added telecommunications services in competition with the PTTs throughout the Community. From 1 January 1993, they will also be able to offer basic services by way of the simple resale of capacity of leased lines.

The basic thrust of the liberalisation of basic data transmission services from 1 January 1993 will be maintained. In addition, all value-added services will be liberalised immediately upon the Directive's entering into force.

At the meeting of the Council of Ministers of 7 December 1989, the Commission agreed, as part of a global compromise, to modify certain aspects of the Services Directive as follows:

EUROPEAN TELECOMMUNICATIONS DIRECTIVES

1. The Commission may consider prolonging the transitory period up to 1 January 1996 for individual Member States whose network for packet-switched data transmission services is not yet sufficiently developed.
2. The second change which the Commission accepted concerns the so-called "cahier de charges" (set of obligations) that may, under certain conditions, be imposed by a Member State on private service providers. Such a set of obligations can only be used in the field of basic packet- or circuit-switched data transmission and only if the activity of competing service providers risks obstructing the performance of the particular tasks asigned to the national PTT in question. In all other instances, the provision of basic data transmission services will be free from 1 January 1993.

It is provided that the Commission will scrutinise any set of obligations which a Member State may want to propose.

3. The revised version of the Services Directive contains a review clause according to which the Commission will examine, in the course of the year 1994, the working of the provisions concerning the set of obligations with a view to determine whether they have to be changed. This permits the Commission to take account of the technological change on the one hand and possible distortions of trade between Member States on the other hand.

RENAULT USER REQUIREMENTS FOR MAP AND CNMA*

The motor industry is a key sector in the economy of the Community. The need for efficient design and engineering, manufacture, test and distribution is very important. Vehicle assembly is highly complex and at the production/manufacturing level, RENAULT's objectives are expressed by the following requirements:

1. to have a non stop operation (zero fault or a 100% availability) of the information system,

2. to adjust performances in relation to the manufacturing process requirements and technology evolutions,

3. to control the global system evolution (i.e., to integrate existing systems with new hardware or software components constituting an improvement without creating any discontinuity, by small but continuous changes),

4. to evaluate the quality of service offered by the global data processing system, from a central point, in real time (i.e., to have the administrative tools which are necessary to manage distributed computing systems and the underlying communication networks).

The above needs led to the following CIM (Computer Integrated Manufacturing) recommendations.

INDUSTRIAL SITES INFORMATION SYSTEM

The RENAULT CIM architecture serves as a model for the development of all new manufacturing and/or production applications. Several integration principles are involved, e.g.:

1. Communication between all interconnected equipment is achieved based on ISO standard protocols,

2. the preferred operating system is currently UNIX 5, with all its associated graphic interface facilities. In some cases, where UNIX is not the best solution or not suitable (e.g., time critical systems), other operating systems will be selected,

3. server and application functions are performed by more than one computer, to assist maintenance and development,

4. data servers provide all the production and manufacturing data to be shared by all local applications and interfaces. At present, data servers are replicated, but not distributed. In the near future, it is expected that data servers will be fully distributed in interconnected systems. Relational data bases are used in the data servers,

5. existing terminals and computers will be integrated into the global system by communication servers, which are used as gateways between proprietary and ISO protocols and

6. System and network management tools will be developed to facilitate overall system administration from a central location.

*** MAP = Manufacturing Automation Control**
CNMA = Communications Network for Manufacturing Applications

RENAULT USER REQUIREMENTS FOR MAP AND CNMA

The factory information system is four-tier comprising the operator, cell, shop-floor (or departmental) and factory levels. Information processing, storage and communication resources are normally distributed over all the four levels.

Communication resources predominate at the operator level, whereas information processing and information storage resources predominate at the shopfloor/department and factory levels. The cell level comprises the information processing and storage resources allowing limited autonomy to the cell in case of unavailability of upper level computers. The first two (lower) levels (operator and cell) are supported by local dedicated communication segments, whereas the two (other) upper levels are supported by a backbone communication infrastructure.

CASE STUDY OF DISTRIBUTED MANUFACTURING APPLICATION

Applications are supported by (micro/mini)computers at the cell and shop-floor/department levels, whereas mainframes are used at the factory level. Production management, manufacturing control and manufacturing monitoring comprise following applications:

a. production planning,

b. production scheduling,

c. production monitoring, product tracking and traceability management,

d. human and mechanical resource management (including personnel management), manufacturing resource planning and maintenance,

e. products quality monitoring and management,

f. components and modules supply (in some cases on an as-needed basis) and inventory management,

g. manufacturing information and programme dispatch on a real-time basis and

h. manufacturing devices control and monitoring.

The criticality of these applications depends on the degree of coupling to the manufacturing process; the real time requirements of actual applications are subject to similar constraints.

An industrial case study was developed by RENAULT, and is currently under way in a first factory. The main goal was the provision of the correct information to car assembly operators, at the right place and time, in an appropriate form, but in the future, the recipients could be robots with the required programs and data down-loaded at the right time.

The human operators can be:

a. distributed along the main production line with the task to assemble car components or complete modules of the passing car bodies,

b. local, in the factory itself, but remote from the main production line, in adjacent assembly units, preparing modules for later mounting on the car bodies on the main production line, and

c. outside the factory (suppliers working on an as-needed delivery basis).

The information is sent to all operators in real time, synchronised with the main production line rate (one car per minute). The schedule for information transfer is calculated relative to the nature of the work to be preformed and the speed of the various transportation means [conveyors, AGVs (Automated Ground Vehicles), trucks, etc.] such that the components/modules arrival at the main production line level is completely synchronised with the assigned car bodies.

For example, information used to confirm delivery orders (to an external supplier working on an as-needed basis) is sent several hours before the parts are to be mounted on the designated cars, allowing for the time needed to load a batch of components/modules, in the right sequence, onto the transportation means (a lorry), and to transport it to the assigned place on the main assembly line.

To provide this information in real time, it is necessary to obtain:

1. the production plan of the day, listing the characteristics of the cars which are to be produced, in the correct manufacturing sequence. This information is held in the production planning mainframe computer. This plan may have been transferred as a whole during the previous night, or may be transferred in real time, grouping a batch of vehicles during the production day,

2. the list of materials, components and modules to be supplied for each scheduled car and

RENAULT USER REQUIREMENTS FOR MAP AND CNMA

3. synchronisation information feedback from all assembly lines to identify the passing cars or components, so that it triggers the sending of related information at the right time.

This involves:

1. the basic modules - servers (data, communication or peripheral/terminal servers) and cell controllers,

2. the application modules,

which are interconnected by a standard communication network conforming to MAP 3.0.

The combined data server modules form the products database of the factory. The current implementation of such a module is based on a UNIX mini-computer using a relational data base (INFORMIX or ORACLE). Several mini-computers are used, in order to guarantee 100% availability of the system.

The current implementation has been selected for its simplicity, but this does not preclude a whole distributed system in the future. The architecture could also be extended to all other data categories, e.g. production, products, production tool and management data. The data servers are not necessarily situated on the manufacturing shopfloor, but can also be located in a dedicated computer room.

Mini-computers support both data server and communication modules. Their twin purpose is:

1. to act as a gateway between the existing computer base (IBM mainframe, installed mini-computers not supporting MAP 3.0) and the selected standard communication network based on emerging ISO standards [MMS (Manufacturing Message Specification) and FTAM (File Transfer Access and Management)]. Consequently, they allow the integration of the existing factory world within the new architecture based on open standards and

2. to act as a gateway between the factory communication network and the public data networks used for EDI (Electronic Data Interchange) with external suppliers. Currently X.25 plus some proprietary protocols are used. Several studies have been started to evaluate standards such as X.400.

The peripheral/terminal server modules are supported by micro- or mini-computers, and are located along the production line. This results in the use of diskless stations to limit problems with hardware arising from, e.g. vibrations, dust, etc. The purpose of these servers is to interface between data processing equipment (servers and application modules) and assembly-line workers. There are servers with dumb RS232 terminals (display, keyboard, badge reader, etc.) but also peripheral servers when more sophisticated stations (workstations) are used (graphic, multi-windowing support, etc.). A terminal server transparently connects dumb terminals to remote computers via an ISO 8802.4 standard LAN, and allows switching of attached devices from one computer to another, either at the request of the local operator or centrally. A peripheral server can be used to interface locally with specific devices comprising dedicated protocols.

Cell controller modules, which are part of the RENAULT CIM architecture, do not form part of the case study. These modules support manufacturing device control and monitoring applications, and could communicate with the infrastructure described above, using MMS services. Each should control and monitor a specific group of manufacturing equipment such as vision systems, measuring devices, etc. Application modules are specific purpose processing units which run one or several dedicated application processes. As an example, the message dispatching application can be split into following processes:

a. collect the synchronisation information provided by sensors, which are distributed along the production line, and trigger some action when specified conditions are met,

b. schedule message dispatch instantly at the correct moment in response to data received,

c. prepare the contents of the messages to be sent and

d. dispatch the messages at the correct time to the correct destination.

Currently, the synchronisation information is provided from a mini-computer through the communication server, which acts as a gateway between the mini-computer proprietary protocol and MMS protocol.

The data, which are used to build the messages, are supplied by the application modules of the data servers, which are connected by MAP 3.0. Planning data are obtained from the factory mainframe during the night using the com-

RENAULT USER REQUIREMENTS FOR MAP AND CNMA

munication server with proprietary mainframe protocols. MMS file transfer is used between communication and data servers. The products data, held in the data servers, can be modified during the production day, if necessary.

NETWORK MANAGEMENT

Network management permits the user to MASTER the communication network (an important resource of the CIM system). Mastering involves:

1. having the capability to extend at will the network coverage, the number of connection points, and to increase the traffic to meet new needs as necessary, keeping the required quality of service level and

2. keeping control of the present service quality (performance and 100% network availability) since production must not stop because of a network fault, and achieving the level of performance adapted to manufacturing process requirements, whatever the degree of distributed control.

In order to master a communication network, the network management tools should:

a. describe the network topology, using previously standardised components,

b. identify the relationships between the hardware components,

c. impose default values to components,

d. associate the above description to real devices,

e. configure the network components when installation has been completed,

f. monitor networks and network components in real time for their main characteristics,

g. obtain a global view of the network resource status,

h. establish continuously, in real time, the level of quality of service offered, analysing network performances,

i. achieve preventive maintenance based on trends analysis and

j. diagnose when maintenance intervention is necessary.

INTENDED BENEFITS FROM ISO AND CNMA

The RENAULT telecommunication strategy is based on ISO and *de facto* standards. The main advantages expected from the former are:

a. facilitate systems integration when deploying CIM concepts,

b. keep products choice freedom to maintain a flexible purchase policy allowing the best products/systems satisfying user requirements to be obtained at a reasonable cost,

c. lead to a large market allowing mass production and low cost products, to reduce operating and maintenance costs by decreasing the number of technologies and protocols to be managed at a given site, and

d. lower the risk of supply problem by carefully selecting vendors and possibly having always two sources.

The main benefits expected from CNMA phase 4, are:

1. impact European communication and network management products via RENAULT user requirements,

2. facilitate relationships all actual and potential vendors and

3. support RENAULT call for tenders when applying the solutions described in large factories.

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Squaring The Information Circle.

The 40th Anniversary Symposium of ICSTI (International Council for Scientific Information, formerly ICSU AB) will be held at Nancy, 13 - 15 May, 1991.

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THE TEDIS TRADE EDI PROJECT

The TRADE pilot EDI (Electronic Data Interchange) project is one of twelve such projects sponsored by the Commission under the TEDIS initiative. The objective of the TRADE project is to establish a number of EDI pilot implementations to demonstrate the opportunities and pitfalls of EDI in SMEs (Small and Medium Enterprises) for international trade using EDIFACT message standards. The EDI applications tested included:

- purchase orders
- invoices
- shipping instructions to export forwarders
- customs data to import clearing agents.

The results of an EDI plan developed for Exacta Circuits Ltd., a multilayer unpopulated printed circuit board (PCB) manufacturer, based in Selkirk, Scotland are reported below.

Exacta have implemented a capability to exchange EDI messages with a major customer, Hewlett Packard (HP) of Grenoble, the first of many which Exacta plan to implement. Exacta's customers have two broad requirements:

- The timely and high quality manufacture of production quantities (typically several hundred) of PCBs for assembly by the customers into standard, existing products.

- The very rapid production of small quantities of prototype boards for customer design engineers to incorporate into their own new product development activities.

The second requirement is served by Exacta through a service known as 'Fast Turn Around' (FTR) - it is highly strategic and profitable.

A common theme is the need to improve lead times, and as this continues to be addressed through extensive manufacturing improvements, the administrative lead times of actually communicating customer requirements to the factory becomes increasingly significant.

EDI fits very naturally with the primary business objective of delivery performance - it offers tremendous opportunity to reduce time taken transmitting customer needs; this is particularly true in the international context.

Most of Exacta's customers are active in developing their own use of EDI, and have been or will be approaching their suppliers requiring them to use EDI. Exacta prefers to take the initiative and propose suitable EDI applications to its customers. This proactive marketing stance is seen as important to Exacta's business development and competitive position.

In the electronics industry, in common with many other sectors, there is an increasing consumer demand for more new products more regularly. Whereas ten years ago, an acceptable product life cycle for a computer may have been five years., life cycles have been considerably reduced, to two years or less. This places considerable pressure on new product development, as well as a need for greatly increased manufacturing flexibility.

The impact on PCB suppliers is an enormous demand for very fast prototype production. There is a direct correlation between speed of production and the price which can be commanded. For example, a board produced in three days may be charged at four times the price of the same board manufactured in 4 weeks.

EDI in the PCB industry is totally strategic - one day postal delay in transmitting a prototype design could represent a 33% overhead on total lead time, as viewed by the customer.

The work carried out had two main purposes:

- To examine how EDI related technologies could be used directly to produce real business benefits.

- To produce a reusable template to enable similar exercises to be undertaken by other SMEs both within and outside the scope of this TEDIS sponsored study.

Successful use of EDI presupposes the existence of appropriate technical and organisational capabilities at both ends of the trading relationship.

For the purposes of this pilot it was decided to implement EDI initially with HP in France; it would however be extremely unwise to focus exclusively on HP as one customer out of many that Exacta serves.

It is anticipated that the steps used can be usefully repeated by other SMEs in the context of their own trading situations:- this will ensure that they will be able to prioritise their own options with a clear view of what can be achieved for what cost, and that they will also be able to anticipate and be proactive to their own customer's demands. This will mean that unnecessary expenditure on inappropriate technology for the wrong reasons will be avoided - SMEs will be able to con-

THE TEDIS TRADE EDI PROJECT

centrate their limited time and resources on EDI implementations which benefit them.

PROBLEMS ENCOUNTERED

EDI opportunities were examined in three main areas: with carriers and forwarders, suppliers and with customers.

A number of difficult problems and obstacles (which had been anticipated) were identified during this exercise.

It should be emphasised that these are only initial difficulties, encountered during the early stages of implementation and that further obstacles are bound to be encountered during the course of the remainder of this study.

In summary, problems were as follows:

- U.K.'up front' EDI costs are high on compared to other countries.

- There are a number of hidden costs, which should be anticipated and planned for.

- The actual trading partners are using a variety of different networks, standards and interpretations of standard messages

- EDI needs to be considered in the context of the overall trading situation of the organisation and its partners - it is not realistic to consider it in isolation from other external factors.

EDI IMPLEMENTATION PLAN

The main elements of this plan are:

- A detailed implementation plan for exchanging Purchase Orders with HP using EDI

- A longer term view of subsequent implementation requirements with other customers, service providers (such as freight forwarders) and suppliers.

The activities included are considered a basic minimum for any EDI implementation - they assume that the "hub" (HP) is already EDI capable and committed. Were this not the case, there would be a need for a number of additional elements.

It is important to remember that this detailed planning exercise follows on from a full consideration of Exacta's business, markets, and computer capabilities with all groups of trading partners.

It is important to remember that other SMEs should avoid going straight to the detailed planning phase, without deciding first what benefits they are seeking, and prioritising their implementation options accordingly.

There are therefore two forces combining to drive the uptake of EDI between Exacta and its customers - customer pressure, and potential benefits for Exacta.

SUMMARY AND CONCLUSIONS.

The aim of this report was:

- Identify benefits, costs and technical options for Exacta

- Circuits to become capable of implementing EDI

- Prioritise Exacta's EDI opportunities

- Develop a timed plan for the implementation of EDI with HP.

It was intended also that lessons learned from this exercise should be identified and brought out for the potential benefit of other SMEs considering use of EDI.

The benefits identified for Exacta through the use of EDI can be pictured as an "iceberg". The widely discussed benefits of EDI, namely administrative savings and error reduction, were not nearly as important as other "below the waterline" benefits of closer customer relationships and other strategic benefits. It is likely that this will be the case for many other SMEs, where actual volumes of incoming and outgoing documentation are not significant in terms of administrative resources required to process them.

For SMEs, it is necessary to be creative in applying the technology for direct business benefits, and to apply EDI to areas which will have maximum profit contribution potential. Exacta are now actively using EDI with one of their major trading partners and intend to roll this technique out to other customers during 1990.

Further information:

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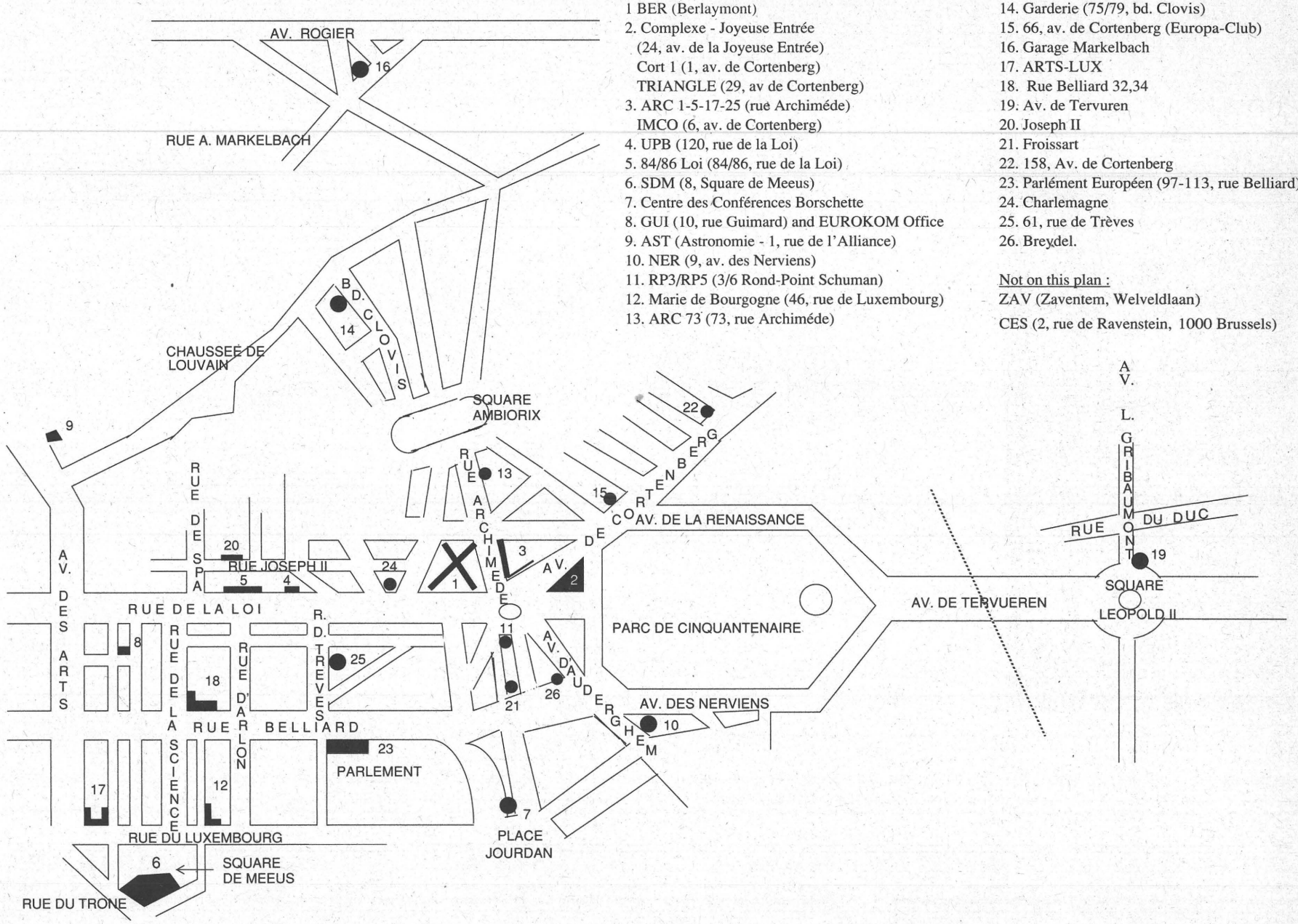
BRUSSELS LOCATIONS OF THE EUROPEAN INSTITUTIONS.



1 BER (Berlaymont)
2. Complexe - Joyeuse Entrée
(24, av. de la Joyeuse Entrée)
Cort 1 (1, av. de Cortenberg)
TRIANGLE (29, av de Cortenberg)
3. ARC 1-5-17-25 (rue Archiméde)
IMCO (6, av. de Cortenberg)
4. UPB (120, rue de la Loi)
5. 84/86 Loi (84/86, rue de la Loi)
6. SDM (8, Square de Meeus)
7. Centre des Conférences Borschette
8. GUI (10, rue Guimard) and EUROKOM Office
9. AST (Astronomie - 1, rue de l'Alliance)
10. NER (9, av. des Nerviens)
11. RP3/RP5 (3/6 Rond-Point Schuman)
12. Marie de Bourgogne (46, rue de Luxembourg)
13. ARC 73 (73, rue Archiméde)
14. Garderie (75/79, bd. Clovis)
15. 66, av. de Cortenberg (Europa-Club)
16. Garage Markelbach
17. ARTS-LUX
18. Rue Belliard 32,34
19. Av. de Tervuren
20. Joseph II
21. Froissart
22. 158, Av. de Cortenberg
23. Parlément Européen (97-113, rue Belliard)
24. Charlemagne
25. 61, rue de Trèves
26. Breydel.

Not on this plan :
ZAV (Zaventem, Welveldlaan)
CES (2, rue de Ravenstein, 1000 Brussels)

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Information Exchange System

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Issue No 29, August 1990

FUTURE EVENTS

ENSURING COMPLIANCE WITH THE DATA PROTECTION ACT. Privacy Laws & Business. Cambridge, 11-13 September 1990.

BUSINESS BENEFITS OF EXPERT SYSTEMS. Brit. Computer Society. London, 17-20 September

COLOR HARD COPY CONFERENCE. BIS CAP International. Amsterdam, 19-21 September, 1990.

EFFECTIVE USER COMPUTER INTERFACE DESIGN. HUSAT Research Centre. Loughborough, 1-3 October, 1990.

INTERNATIONAL TECHNOLOGY LICENSING. DTI and Financial Times. Brighton, 2-4 October, 1990.

TERMINOLOGY AND KNOWLEDGE ENGINEERING. INFOTERM and Trier University. Trier, 2-4 October, 1990.

INTEROP 90: REAL-WORLD SOLUTIONS FOR TODAY'S NETWORKS. San Jose, California. 8-12 October, 1990.

FIBRE DISTRIBUTED DATA INTERFACE. Deutsche Congress Gesellschaft. Bonn, 9-10 October, 1990.

SATELLITE COMMUNICATIONS AND BROADCASTING. CEI-Elsevier. Toledo, 15-19 October, 1990.

ESPRIT Conference Week 1990

This year's ESPRIT Conference, to be held in Brussels, from 12 to 15 November, will be devoted to the results, achievements and new perspectives of Information Technologies within the ESPRIT programme.

During the first three days, project results will be presented in plenary and parallel sessions, complemented by panel sessions and workshops where invited speakers will discuss issues relevant to ESPRIT.

During the Information Technology Forum on 15 November, a number of prominent speakers from industry, politics and science will address the Conference.

The Conference and IT Forum will be complemented by an exhibition in which more than 90 projects will demonstrate their results. Additional projects will participate via poster displays or videos.

Facilities will be provided for evening meetings of delegates sharing common technical interests: All sessions, except the IT Forum, when simultaneous translation will be available, will be in English.

DG XIII would appreciate your attendance and active participation in contributing to the success of this year's Conference. Since the number of participants is limited, early registration (before 12 October) is advisable.

Registration forms and full details of the Conference can be obtained from:

E.C.C.O.
Rue Yllin XIIII, 17a
B-1050 Brussels
Tel. +32-2-647-8780
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Telecommunications
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FUTURE EVENTS

GOSIP BRIEFING. OMNICOM. London, 15 October, 1990.

TRAINING TECHNOLOGIES FOR COMPETITIVENESS. Blenheim. The Hague, 16-18 October, 1990.

EXPERSYS 90. Institute for Industrial Technology Transfer. Grenoble, 18-19 October, 1990.

DELTA AND BEYOND. Educational Computing Consortium, Philips and Klett Verlag. Amsterdam, 18-19 October, 1990.

INTERREGIONAL TECHNOLOGICAL COOPERATION IN EUROPE. Ministerio de Energia e Industria. Madrid, 23-24 October, 1990.

RURAL TELECOMMUNICATIONS. Institution of Electrical Engineers. London, 29-31 October, 1990.

INFORMATION TECHNOLOGY AND PEOPLE. Institution of Electrical Engineers. Bournemouth, 29-31 October, 1990.

TEXT RETRIEVAL. Institute of Information Scientists. London, 30 October - 1 November, 1990.

OPTIMAL MANAGEMENT OF INFORMATION SYSTEMS. CMGF. Paris, 7-9 November, 1990.