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## Contents

1.	Executive summary	3
2.1	Introduction	3
2.1	Organization of this report	3
3.	Standards bodies topics	4
3.1	Standards Developing Organizations	4
3.1.1	CEN/ISSS	4
3.1.2	CENELEC	9
3.1.3	ETSI	12
3.2	Forums and consortia	24
3.2.1	Digital Video Broadcasting (DVB) Project	24
3.2.2	European Broadcasting Union	28
3.2.3	European Committee for Banking Standards (ECBS)	29
3.2.4	Ecma International	29
3.2.5	EICTA	32
3.2.6	ERTICO (Intelligent Transport Systems and Services – Europe)	34
3.2.7	Internet Society European Chapters Coordinating Council	34
3.2.8	Liberty Alliance Project	34
3.2.9	Radicchio	35
3.2.10	TM Forum	35
3.2.11	OMG	37
3.2.12	OASIS	38
3.2.13	RosettaNet standard topics	39
3.2.14	W3C standard topics	40
3.2.15	Open Group standards topics	47
3.3	Observers	49
3.3.1	ANEC	49
3.3.2	NORMAPME	49
4	IST project reviews	50

## D18 – COPRAS reverse mapping report

4.1	Projects relevant to CEN/ISSS topics	52
4.2	Projects relevant to CENELEC topics	53
4.3	Projects relevant to ETSI (and/or 3GPP) topics	54
4.4	Projects relevant to DVB topics	55
4.5	Projects relevant to Ecma International topics	56
4.6	Projects relevant to ERTICO topics	56
4.7	Projects relevant to OASIS topics	57
4.8	Projects relevant to OMG topics	58
4.9	Projects relevant to RosettaNet topics	60
4.10	Projects relevant to W3C topics	60
4.11	Projects relevant to The Open Group topics	65
5	Conclusions	72

## 1. Executive summary

This deliverable reflects one of the two recommendations received from the project reviewers during the first project review held 17 March 2005 and provides a ‘reverse mapping’ analysis in order to determine the extent to which the IST programme is funding research areas where standards bodies and industry consortia are active. The analysis is based on reviewing publicly available project information, particularly related to the stated objectives of each project. For the standards bodies a similar analysis of public information was performed. Therefore the results indicate commonality when there is a significant correlation between general issues addressed by standards bodies and projects, rather than when topics on the periphery are concerned.

As the approach of identifying topics specifically addressed at this first stage of (available) project information, identified synergies between projects and standards bodies, do not necessarily guarantee a project will also be seeking such synergies in future work. Where this was not clear from the summaries and objectives, but potential synergy was suspected, some further project investigations were performed. The analysis is confined to Call 1 and 2 projects within the IST FP6 programme.

The first section of this report contains a short overview of relevant topics addressed by standards organisations against which the research was conducted. It should be noted that this report focuses on the ICTSB member organisations and is structured based on the organisation’s status (formal SDOs, Fora and consortia and observers). The second section lists all projects, together with a link to their home page (where available), identifying where work is under way that is addressing the areas where the standards organisations are active.

The deliverable also provides conclusions from this analysis, both from a quantitative as well as a qualitative perspective. From a quantitative perspective, the results demonstrated in this deliverable indicate commonality when there is a significant correlation between general issues addressed by standards bodies and projects, and does not so much concern topics on the periphery.

The analysis provided in this deliverable focuses on the ICTSB members, meaning it covers the European standardization organizations and their areas of interest. As a general conclusion, it can be stated that the areas of interest of the ICTBS members are quite considerably covered by the research projects. It should also be stated that industry consortia, contrary to the traditional SDOs, are generally more focused on specific topics, which naturally corresponds to the distribution of the issues addressed by the projects, among these consortia. It should however be mentioned that many of the projects in Calls 1 and 2 interface directly with organizations operating on a worldwide level, such as ITU, IETF, IEEE, ISO\_IEC, and OSGi.

## 2. Introduction

The purpose of this study is to determine the extent to which the IST programme is funding research areas where standards bodies and industry consortia are active. The analysis is based on reviewing publicly available project information, particularly related to the stated objectives of each project.

For the standards bodies a similar analysis of public information was performed. Therefore the results will indicate commonality when there is a significant correlation between general issues addressed by standards bodies and projects, rather than when topics on the periphery are concerned.

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Where this was not clear from the summaries and objectives, but potential synergy was suspected, some further project investigations were performed. The analysis is confined to projects within the IST FP6 programme.

### 2.1 Organisation of this report

The first section of this report contains a short overview of relevant topics addressed by standards organisations against which the research was conducted. It should be noted that this report focuses

on the ICTSB member organisations and is structured based on the organisation's status (formal Standards Developing Organizations (SDOs), industry fora and consortia, and observers).

The second section lists all projects, together with a link to their home page (where available), identified where work is under way that is addressing the areas where the standards organisations are active. The standards organisations are:

- 1) SDOs:
  - i) European Committee for Standardisation (CEN)
  - ii) European Committee for Electrotechnical Standardisation (CENELEC)
  - iii) European Telecommunications Standards Institute (ETSI).
- 2) Fora and consortia:
  - i) Digital Video Broadcasting (DVB) Project
  - ii) European Broadcasting Union (EBU)
  - iii) European Committee for Banking Standards (ECBS)
  - iv) Standardizing Information and Communication Systems (Ecma International)
  - v) European Industry Association (EICTA)
  - vi) Intelligent Transport Systems – Europe (ERTICO)
  - vii) Internet Society (ISOC-ECC)
  - viii) Liberty Alliance
  - ix) Global Initiative for Wireless E-Commerce (Radicchio)
  - x) TeleManagement Forum (formely the NMF)
  - xi) The Object Management Group (OMG)
  - xii) Organization For The Advancement Of Structured Information Standards (Oasis)
  - xiii) RosettaNet
  - xiv) The World Wide Web Consortium (W3C)
  - xv) The Open Group
- 3) Observers:
  - i) European Association for the Co-ordination of Consumer Representation in Standardization (ANEC)
  - ii) The European Office of Crafts, Trades and SMEs for Standardisation (Normapme).

## 3. Standards bodies topics

### 3.1 Standards Developing Organizations (SDOs)

#### 3.1.1 CEN / ISSS

CEN, the European Committee for Standardization, as a member of the ICTSB, has established CEN/ISSS (Information Society Standardization System) to provide market players with a comprehensive and integrated range of standardization-oriented services and products, in order to contribute to the success of the Information Society in Europe. Created by CEN to meet market demand in Europe for a middle way between formal and informal standardization, CEN/ISSS offers an alternative that is closer to the workings of the commercial environment. It draws on the best of both worlds, bridging the gap between the rapid process of informal specification and the security offered by the formal open consensus of traditional standardization.

ISSS is a system - it contains all the elements required to facilitate industry requirements for advancement of effective standardization-oriented solutions in the ICT sector, from traditional standardization tasks through to rapid preparation of specifications and other technical work, development of informative material, public presentation of work and market testing of alternative solutions. Activities take place in several different forums including workshops, focus groups and traditional technical committees; principal topics include:

#### CEN/ISSS Workshops:

- **Applying Technologies:**

- **J-XFS Workshop:** The specifications produced by the J/XFS Workshop provide an API for Java applications which need to access financial devices, which is hardware independent and, by using 100% pure Java, also operating system independent. The J/XFS Workshop gathers suppliers (among others the J/XFS Forum members), service providers as well as banks and other financial service companies.
- **XFS Workshop:** The XFS Workshop is a continuation of the Banking Solution Vendors Council (BSVC) workshop and maintains a technical commitment to the Win 32 API. However, the XFS Workshop has extended the franchise of multi vendor software by encouraging the participation of both banks and vendors to take part in the deliberations of the creation of an industry standard. This move towards opening the participation beyond the BSVC's original membership has been very successful with a current membership level of more than 20 companies. The fundamental aims of the XFS Workshop are to promote a clear and unambiguous specification for both service providers and application developers. This has been achieved to date by sub groups working electronically and quarterly meetings
- **Meta-Data (Dublin Core) Workshop:** Information discovery is what Dublin Core metadata "data about data" are all about. The Dublin Core metadata element set, for years the leading de facto standard, has during 2003 also obtained a formal recognition of its leading role through its publication as IS 15836. Internationally, work resides within the Dublin Core Metadata Initiative (DCMI). The MMI-DC Workshop, at the European level, provides an open forum in which Dublin Core metadata standards related issues get addressed. The Workshop's activities are complementary to the work done within the international DCMI context.
- **Network Enabled Abilities:** Network Enabled Abilities is about enhancing military/police/... capability by better exploitation of information. Those with a military background would talk about NEC (Network Enabled Capability), NCW (Network-Centric Warfare), etc. The title reflects the ambition to go beyond the military domain and to also address the needs of certain civilian authorities such as rescue and police services, coast guards, etc. The challenge is to integrate defence production and technological development for military/police/... purposes efficiently with commercial technologies and products. There is a need for standardisation to provide a common terminology, common definitions of basic components in the network and a transparent structure of services that could be handled by future networks. Reference has to be made to existing European and international standards where they are applicable and fulfil the needs.
- **eBusiness and eCommerce:**
  - **eBES (ebXML) Workshop:** The CEN/ISSS eBES Workshop is a focal point within Europe for the standardization of technologies to exchange electronic business data. WS/eBES is the "European Entry point" for the UN-ECE/CEFACT electronic business standardization process. WS/eBES therefore represents the European point of view in the global debate, including on the need for a multi-lingual and multi-cultural approach to B2B data interchange standardization. It can provide information about new standardized technologies in this field, and foster their use, and contribute to the global processes defined by OASIS and UN/CEFACT, for ebXML, as well as traditional Electronic Data Interchange. In future, it shall participate in the UN/CEFACT's new Business Collaboration Framework.  
WS/eBES carries out a variety of activities – awareness (dedicated web pages, seminars), localization (providing translations of key specifications) and technical consensus. It also have a Vendor Forum, which has provided, in association with OASIS, an ebXML interoperability demonstration.
  - **eCataloguing/Classification Workshop:** Launched in 2002 to address issues related to the use of electronic catalogues used in eBusiness in a multilingual environment, the scope of CEN/ISSS WS/eCAT has been extended to include harmonization of product classification schemes and their application to electronic catalogues (ePDC and Gen-ePDC projects).

Catalogues and classification issues are key issues for businesses; their importance is even higher in the electronic marketplace, where companies work among each others and with public administrations based in different countries with electronic tools. Catalogues and product classification are connected among each others, as companies, administrations and any other organization need to have a harmonized set of product classification in order to set up a catalogue. In Europe catalogues and product classification schemes need to be multilingual.

The challenge for CEN/ISSS WS/eCAT is therefore to establish interoperable multilingual electronic product classification schemes and catalogues, which take into account European requirements and work at international level.

- **eInvoicing Workshop:** The CEN/ISSS Workshop on "Interoperability of Electronic Invoicing" was launched on 21 April 2004 in response to a EU/EFTA standardization mandate concerning standardization in support of Directive 2001/115 of the Council and Parliament. It has been set up to implement the standardization recommendations which are part of the report delivered in October 2003, by the e-Invoicing Focus Group which had been created at the request of the European Commission. The aim was to examine the issues of the e-Invoicing and VAT in relation to the new Council Directive, which had to be implemented by Member States by 1st January 2004. The "e-Invoicing" Workshop has three main objectives:
  - To take due account of the implementation of the relevant recommendations from the report produced by the e-Invoicing Focus Group;
  - To take due account to the provisions of the relevant EU legislation, decisions and recommendations such as the Directive on Electronic signatures and the EDI Model Agreement recommendation;
  - To integrate already existing standardisation, where necessary and appropriate, especially as regards electronic signatures and electronic archiving/storage, and formats as regards EDI and XML.
- **Coding Structures in Support of Freight Telematics (TAF):** The TAF Workshop has been set up to create coding structures to support data exchange as defined in the technical specification for interoperability (TSI) relating to the subsystem Telematic Applications for Freight of the Trans-European Conventional Rail System referred to in Article 6(1) of Council Directive 2001/16/EC. The TSI for Telematic Applications for Freight (TAF) defines the standard electronic messages containing data required for interoperability between the actors in the Trans-European rail network.

In order to effectively implement the TSI, the TAF requires a number of common reference files and codification schemes to uniquely and unambiguously identify entities, objects and locations. Many of the codification schemes already exist as international standards (UIC Leaflets, ISO standards, etc), however each must be re-evaluated and possibly expanded within the context of the TAF.
- **e-Business interoperability in the textile/clothing sector (TEX-WEAVE):** The Textile and Clothing sector is characterized by the existence of sub-sector communities based on industrial districts or product typology. A number of local e-Business "dialects" born for internal use inside these communities have been applied to proper e-Business platforms (Marketplaces, ASP, etc.) all around Europe. This is unavoidable, but a higher-level standard business semantic to make these e-Businesses "islands" interoperable is an urgent need felt by almost everybody operating in the market. WS/TEX-WEAVE will build upon the results of the CEN/ISSS WS/TEX-SPIN and related pilot project, which were concluded in 2003. TEX-SPIN was based on best practices, and led to the definition of B2B scenarios of collaboration, dictionaries, data exchange architectures and a set of XML messages for the textile supply chain (CWA 14948, March 2004). WS/TEX-WEAVE aims to extend and consolidate the technological results of TEX-SPIN and to create critical mass for their widespread adoption by industry. This objective will be reached by improving the support for semantic interoperability, adding more flexibility and capacity to deal with communities and giving more emphasis to the sharing of common dictionaries and business models. The Workshop will provide the Textile/Clothing (TC) sector with a framework for interoperability based on standardized electronic document exchange based on XML Schemas

and Internet, and will foster the framework's adoption in the real business communities.

- **European Network for Administrative Nomenclature (WS/ADNOM):** The aim of the Workshop ADNOM is to establish and maintain a network between European government translation units, terminology organizations, etc. with the purpose of developing and disseminating European Administrative Nomenclature, built as far as possible on the basis of existing networks and resources.

By Administrative Nomenclature is meant names and closely related terminology that designate specific items for which no exact correspondence exists in other countries and languages. Some typical examples of these items are: names of government administration offices, organizational charts, job titles in public administration, school system terminology, terminology relating to taxation and social welfare. As part of the proposed activity the practical scope of Administrative Nomenclature will be studied, as well as the feasibility of extending the activity into adjacent fields in the future.

- **eLearning**

- **ICT-Skills Workshop:** CEN/ISSS is standardizing ICT skills profiles for university degree job entrants in the ICT industry. This initiative will address the skills gap suffered by European ICT industry, and respond to the objectives set in eEurope 2005. In its 1st phase of operation (April - December 2003), the CEN/ISSS Workshop on ICT Skills and Curricula, proposed by Cedefop, Cepis and the ICT industry represented by the Career Space consortium has validated in an open consensus process the ICT profiles and ICT Curriculum development guidelines published by Career Space and Cedefop in 2001 and 2002. The Workshop will work during 2005 on a European ICT-Skills Meta- or Reference Framework

- **Learning Technologies Workshop:** The Learning Technologies Workshop is operational since February 1999. Its objective is to encourage the effective development and use of relevant and appropriate standards for learning technologies for Europe.

The Learning Technologies Workshop decided, as a matter of principle, not to duplicate work already being done elsewhere, but to ensure that diverse European requirements are properly addressed by global initiatives. Specifications, agreements, guidelines or recommendations will be developed when no initiative addressing the identified requirements is in place yet or when global solutions developed elsewhere need to be localized to European requirements.

Finally, in the domain of eLearning and eTraining, considerable efforts are invested under the IST programme as well as via many national or European initiatives. Projects producing specifications, architectures, reference models, etc., with the intention of attracting broader support and recognition of their work, can use the Workshop as a useful tool for reaching a European-wide consensus on their deliverables.

- **Public Interest:**

- **DPA Workshop:** Given the widespread adoption of ICT within the publishing industries, there is a general interest in the creation and provision of well-formatted digital documents. For those people who are dependent on accessible information, this interest is of central importance, and it is this convergence of interests that offers exciting opportunities for these different stakeholders. The CEN/ISSS WS DPA will examine the ways in which this convergence is helping to build consensus and create new standards and technologies for the provision of information in formats that are more accessible for everyone.

CEN/ISSS WS DPA will take the broadest definition of content creators and aims to produce guidelines to help them to provide accessible information. For example:

- how should a publisher structure pdf documents to maximize accessibility?
- how can the document processing chain incorporate accessibility at an earlier stage to avoid prohibitive costs?
- how does one provide structured audio for Talking Books?
- how can content creators provide services for these new markets?

- **Data Protection and Privacy Workshop (DPP):** The aim of Workshop CEN/ISSS/WS/DPP is to help organizations to comply with the Data Protection Directive and relevant national legislation by facilitating harmonization of practice, developing the understanding and predictability of detailed or sector practices, contributing to resolving ICT technical compliance issues, and encouraging consistency of assessment and oversight. The Workshop takes due regard of the provisions of the relevant EU legislation on data protection and privacy, including Directives 95/46/EC, and 2002/58/EC. In its first phase of activity it produced CEN Workshop Agreements in the following areas:
  - Generic set of contract clauses
  - Common European voluntary best practices for data controllers and data processors
  - Assessment of data protection audit practice
  - Technology impact analysisPhase 2 of the Workshop activity, addresses extensions to the completed work.
- **WAC Workshop:** The purpose of the Workshop is to reach a CEN Workshop Agreement (CWA) on Specifications for a complete European Web Accessibility certification scheme and a Quality Mark. Such a European Quality Mark for Web Accessibility makes possible to identify if a Web Site is compliant or not to the existing content guidelines of W3C/WAI. In addition to stimulating the take up of web accessibility, it will also simplify the task of web site owners and corresponding industry across Europe by providing a unique labelling rather than a fragmentation of this process. Such a scheme has previously been investigated by an EC IST project (Support-EAM), part of a cluster of projects which is defining an overall European methodology for assessing web accessibility in conformance with W3C WAI content guidelines.
- **Smart Cards and related:**
  - **WS-MMUSST (Citizen Cards):** The Workshop aims:
    - To obtain consensual agreement on the essential organisational and operational rules and processes to enable interoperability between multi-application multi-issuer schemes from the local to trans-national levels, building on the work of SmartCities (IST Project 12252). This will have specific regard to roles and responsibilities of the range of scheme partners and best practice in data protection, ownership and liability in order to enhance customer and partner confidence and trust.
    - To obtain consensual agreement on the technical and functional specification of the plug and play architecture to support card, terminal and back office systems within this interoperable system, enabling application providers to benefit from the large card base distributed in cities without having the burden of managing the card scheme themselves.
    - To define and disseminate the above agreements, and establish the necessary procedures to manage the standard, in collaboration with current and emerging standards bodies, user networks and projects.

### Focus groups:

- **Biometrics:** The objective of the Focus Group is to improve information flow and compare notes about global progress. The Focus Group is not a standards group as such, there being no evidence of requirements at this stage for any dedicated European work. The European Biometrics Forum collaborates with the proposed Group, from the perspective of industry awareness.
- **eGovernment:** The Focus Group is to determine the role that standards should play in eGovernment, in particular as an important means of achieving interoperability at all levels of public administration throughout the European Union, including at national, regional and local levels. The Group will identify what measures are required to achieve this goal and contribute to the debate on how to ensure a permanent framework concerning standards in relation to eGovernment at a pan-European level, in a way that is as harmonised as possible with ICT standards of general application. The Focus Group is established to prepare proposals and/or



recommendations to CEN and other standardization bodies, the European Commission and its agencies, national administrations and industry and other market players concerning standardization issues in the field of eGovernment.

- **eHealth:** In March 2005 the Focus Group finalized the Report "Current and future standardization issues in the eHealth domain: Achieving interoperability", which is now here available. The Report contains proposals and recommendations for future priorities for eHealth standardization activities in support of eEurope 2005 Action Plan.
- **eBusiness Ineroperability Forum (eBIF):** eBIF serves as the European platform for the consideration of interoperability solutions relating to eBusiness, and make strategic recommendations concerning standardization towards the market (in the broadest sense of the word), rather than actual standards and specifications, which is the task of specific consensus groups in CEN/ISSS or elsewhere.

### Technical Committees:

**CEN/TC 224 Machine readable cards, related device interfaces and operations:** organizes, coordinates and monitors the development of standards (including testing standards) for cards, related device interfaces and operations with special emphasis on inter-industry standardization and on Integrated Circuits Cards, without restriction to payment cards or bank cards.

**CEN/TC 225 Bar coding** standardizes bar code symbologies and has established an appropriate system of registration authorities, and the means to ensure the necessary maintenance of standards.

**CEN/TC 247 Controls for mechanical building services** standardizes individual and combination devices and systems for automatic control of mechanical building service installations, in particular, for heating, ventilating and air-conditioning systems.

**CEN/TC 251 Health informatics** organizes, coordinates and monitors the development of standards, including testing standards in healthcare informatics, as well as the promulgation of these standards.

**CEN/TC 278 Road transport and traffic telematics** works with standardization in the telematics field applied to road traffic and transport, including those elements that need technical harmonization for inter-modal operation with other means of transport. It supports activities such as vehicle, container, swap body and goods wagon identification; communication between vehicles and road infrastructure; traffic and parking management, user fee collection, public transport management and user information.

**CEN/TC 287 Geographic Information** produces a structured framework of standards and guidelines, which specify a methodology to define, describe and transfer geographic data and services. This work is carried out in close co-operation with ISO/TC 211 in order to avoid duplication of work. The standards support the consistent use of geographic information throughout Europe in a manner that is compatible with international usage. They support a spatial data infrastructure at all levels in Europe.

**CEN/TC 294 Communication systems for meters and remote reading of meters** standardizes communication systems with meters and remote reading of meters for all kinds of fluids and energies distributed by network and suitable also for household meters. This TC cooperates in a joint working group with CENELEC for communication systems with meters and remote reading of meters of electrical energy.

**CEN/TC310 Advanced Manufacturing Technologies** ensures the availability of standards required by industry for the integration of elements of Advanced Manufacturing Technologies (AMT) systems. Standards are required in areas such as enterprise modelling and system architecture, communication, data, information processing, control equipment, human aspects, mechanical aspects and system operational aspects.

### 3.1.2 CENELEC

CENELEC, The European Committee for Electrotechnical Standardization, was set up as a non-profit-making organization under Belgian law in 1973. Its members and affiliates are the National Electrotechnical Committees of thirty countries across Europe. Links with industry have been established through formal co-operation agreements with major European industry associations.

The priority areas for CENELEC standardization work are those which determine the free movement of goods and services and/or are directly or indirectly related to EU Directives and EC or EFTA standardization mandates. Principal topics include:

- **Electrotechnical aspects of telecommunication equipment (TC 215):** TC 215 is the competent European committee to provide for the necessary European cabling infrastructure standardization. Today - and this constitutes a major change compared to the traditional views and approaches - office premises are expected to provide a generic cabling system infrastructure to the (most probably) different tenants of a building, thus supporting the full range of today's and tomorrow's information and communication technology services to be available on the users' desks. Up to now the data rates of these services have steadily been growing, presently resulting in symmetrical twisted pair cables with a bandwidth of up to 600 MHz. And the trend for higher data rates will continue in the next few years.

With teleworking becoming more and more attractive, not only classical business premises but also SOHO (Small Office Home Office) need such a cabling infrastructure. Moreover, with the convergence of applications, the formerly separated markets for office communication, multimedia and intelligent buildings are merging. This will further amplify the requirement from the end user for generic cabling solutions, which cover the full range from low-speed control applications to high-speed internet access or video on demand services.

- **Cable networks for television signals, sound signals and interactive services including equipment, systems and installation (TC 209):** TC 209 is responsible for the EN 50083 series of standards. This series deals with "cable networks for television signals, sound signals and interactive services including equipment, systems and installation". Traditionally these networks are used for broadcast type of services where the user terminal has been a TV or a (FM) radio receiver. Recently the use of these networks are going to be changed dramatically. The networks are more and more modified for two-way communication. User terminals can be now almost anything including cable modems (connected to a PC).

User terminals are not in the scope of TC 209. However, the connection lead (receiver lead) from the system outlet to the user terminal is of great interest to this committee. CLC/SC 46XA standardises these components.

- **Power Line Communication (CLC/SC 205A):** The technology can be used in the access network as well as in-house to support Internet access. Current standards cover 3 KHz to 148,5 kHz for home and building control applications and for utility remote metering. Higher layers of protocol are the responsibility of TC205. New work concerns frequencies up to 30 MHz for telecoms and other applications and is being conducted with ETSI responsible for the upper layers of protocol. The consumer band in the CLC/SC 205A main standard (EN 50065-1) allows co-existence of products from different manufacturers. Without this the consumer might be tied to one supplier. EN 50065-1 is harmonised under the EMC Directive. There is a suite of supporting standards to be published in the near future. Work has recently started on a new standard for frequencies up to 30 MHz. This will allow high speed digital access to consumer's premises via the utility wiring. However, there are many regulatory problems. The proposed standard will also allow high communication around the home.

The high frequency project is being undertaken in conjunction with ETSI EP PLT "Project Power Line Telecommunications". There is also a need to co-ordinate with CEPT ERC "Comité Européen des Postes et Télécommunications – European Radio Committee".

- **Optical Fibres and Cables (TC 86A):** The scope of TC 86A is to prepare and maintain specifications for optical fibres and cables, excluding image transmission types, in accordance with the requirements of document CECC 00 111, for use within the CECC system for the quality assessment of electronic components. Due to the booming growth of optical transmissions, means that standards need to be defined for the new evolutions of optical fi-

bres and cables. Considering the ever increasing transmission capacities which employ new technologies such as DWDM and the use of new right of ways for cable installation, new standard developments are needed for optical fibres and optical cables.

There is at the same time a need for new standards, as explained above, and a request for guidance on which type of standard to be used for a specific application. TC 86A tries to answer both by developing new documents or updating existing ones, within its set of standards for optical fibres and cables, and also by developing a guidance document for the use of different types of optical fibres.

- **Consumer equipment for entertainment and information and related sub-systems (TC 206):** CLC/TC206 is responsible for the standardisation of "Consumer equipment for entertainment and information and related sub-systems". Information technology aspects are of increasing importance with the gradual change from the standardisation activities from analogue to digital. In particular, receiving equipment for digital broadcast systems can interface with IT equipment. In many cases a return channel via cable or modem is present enabling interactive use of the equipment. The user interface is within the scope of TC206. At this moment there are no specific activities here related to IT.
- **Electrical products for people with special needs, the elderly and disable people (CLC/BTWG 101-5 - CENELEC Technical Board Working Group (BTWG) 101-5):** The Working Group is working on the usability and safety of electrical products for people with special needs, including children, the elderly and those with disabilities. In co-operation with other relevant CENELEC committees, the Working Group is preparing guidance documents for use by all CENELEC Technical Committees. These will identify new items to be included in CENELEC's work programme, and should ensure that Design for All and Assistive Technologies requirements are taken into account in all of CENELEC's standardization work. The Working Group is also preparing a proposal for sector guides, to complement the general aspects considered in CEN/CENELEC Guide 6 (ISO/IEC Guide 71), taking into account sector specific needs. This includes considering the inclusion in electrotechnical standards of measures to ensure the accessibility of elderly and disabled people to ICTs. Part of the preliminary study to determine the needs of elderly persons and people with disabilities will be used for the development of an ICT sector guide and will contribute to the general CENELEC strategy for ICTs.
- **Home and Building Electronic Systems (HBES) CLC/TC 205):** The TC is the main European contributor to the "Intelligent Homes" standardization. It got therefore the task from the ICTSB to co-ordinate this field of standardization which includes the preparation of standards for all aspects of home and building electronic systems in relation to the Information Society. In more detail, the standards to ensure integration of a wide spectrum of control applications and the control and management aspects of other applications in and around homes and buildings, including the gateways to different transmission media and public networks taking into account all matters of EMC and electrical and functional safety. TC 205 does not prepare device standards but the necessary performance requirements and necessary hardware and software interfaces. The standards should specify conformity tests. TC 205 performs the work in close co-operation with relevant CENELEC TCs and those in CEN and ETSI.

Various electronic devices are used in homes, buildings and similar environments (including their immediate surroundings) for several applications relevant to the home and/or building. The expression "Home and Building Electronic System" (HBES), covers any combination of such electronic devices linked via a digital transmission network; the HBES includes a specification for this communication network. Other names used like Home Control Network, "home control systems", "home systems", "building systems", "building automation system", etc., are only describing types of HBES and are not synonymous. TC 205 concentrates on control applications.

The scope of TC 205 covers all three classes of HBES, but for specification work TC 205 concentrates on HBES Class 1. For HBES class 2 and 3, the standards being developed by the relevant IT and multimedia committees will be adopted so as to not invent new IT and

multimedia communication standards. TC 205, however, will take care of the consistency and coexistence of these parts with the control system part.

The classes of home control systems are defined, depending on the transmission throughout capabilities:

- i) HBES Class 1: Home control system with transport capabilities for telecontrol applications such as: Control, Monitoring, Measurement, alarm, low speed data transfer e.g. for lighting, heating, food preparation, washing, energy management, water control, fire alarms, blinds control, different forms of security control, etc.
  - ii) HBES Class 2: Home control system with class 1 transport capabilities plus: Switched voice or other information transfer with similar bandwidth.
  - iii) HBES Class 3: Home control system with class 2 transport capabilities plus: Switched high quality sound and video transfer and high speed data transfer.
- **Alarm Systems (CLC/TC 79):** The TC contributes also to Intelligent Homes and Buildings because and the use of networks.
  - **Digital Broadcasting:** CENELEC is also taking up aspects related to the Digital Broadcasting and in particular the requirements for people with disabilities. In particular there is a clear need of harmonization for the subtitling and audio description.
  - **Intelligent Transport Systems:** CENELEC TC 9X - Electrical and electronic applications for railways" contributes to the interoperability of railway systems.

### 3.1.3 ETSI

The European Telecommunications Standards Institute (ETSI) is an independent, non-profit organization, whose mission is to produce telecommunications standards for today and for the future. Based in Sophia Antipolis (France), the European Telecommunications Standards Institute (ETSI) is officially responsible for standardization of Information and Communication Technologies (ICT) within Europe. These technologies include telecommunications, broadcasting and related areas such as intelligent transportation and medical electronics.

ETSI unites 688 members from 55 countries inside and outside Europe, including manufacturers, network operators, administrations, service providers, research bodies and users - in fact, all the key players in the ICT arena. ETSI plays a major role in developing a wide range of standards and other technical documentation as Europe's contribution to world-wide ICT standardization. This activity is supplemented by interoperability testing services and other specializations. ETSI's prime objective is to support global harmonization by providing a forum in which all the key players can contribute actively. ETSI is officially recognized by the European Commission and the EFTA secretariat.

ETSI's Members determine the Institute's work programme, allocate resources and approve its deliverables. As a result, ETSI's activities are closely aligned with market needs and there is wide acceptance of its products. ETSI's standards are built on consensus.

ETSI is typical of standardization bodies generally - the technical work (i.e. the creation of technical standards and specifications) is mostly done in committees. The Technical Committees and Projects form part of the ETSI Technical Organization. But ETSI differs from many other bodies in several important ways:

- there is direct participation by all members in the technical work;
- the use of Specialist Task Forces (previously called Project Teams), meeting full-time or at least more frequently than the Technical Committees or Projects, has done much to accelerate the production process;
- specialist studies in the areas of specification and testing methodologies help to ensure optimum quality and usability of ETSI's deliverables;

- there is a strong trend to strategic alliances with other standardization/specification bodies around the world, which help to bring the skills and knowledge of the world's leading experts together to work on tasks for the common benefit of all participants.

**The 3rd Generation Partnership Project:** The 3rd Generation Partnership Project (3GPP) has been created by ETSI and a number of regional partners to develop globally applicable Technical Specifications for a 3rd Generation Mobile System based on the evolved GSM core network and the Universal Terrestrial Radio Access (UTRA).

3GPP is not a legal entity, so it has no formal base. Support to 3GPP (and to ETSI Technical Committee MSG) is provided by a Mobile Competence Centre hosted by ETSI. Similarly, the products of 3GPP have no official status, but they are intended to be published by relevant standardization bodies (the 3GPP Organizational Partners) into appropriate deliverables (e.g., standards).

Interactions with external bodies, such as the ITU, are officially undertaken by the Organizational Partners or Individual Members of 3GPP.

Principal topics and activities of ETSI include:

- **TC AT (Access and Terminals):** The Technical Committee Access and Terminals (AT) is the "home" for terminal matters within ETSI, established on the basis of a technical area and on the global market sector of Telecommunications Terminals. AT is organized around a set of ETSI work items addressing specific technology and regulatory areas. AT centres its activity on the field of:
  - interface technologies used in publicly offered wired terminal interfaces;
  - emerging technologies and their application to terminals;
  - compatibility amongst technologies used, considering available infrastructures;
  - analogue presented wired interfaces of Telecommunications Networks;
  - digital presented wired interfaces of Telecommunications Networks
  - interfaces based on new technologies as far as they are relevant for telecommunications Terminals;
  - performance, features and functions supporting Telecommunications services implemented on terminals.

The interfaces referred to above could be public or private, switched or non-switched, seen from either the network or the terminal side. They use well established technologies (POTS/PSTN or ISDN) or, in close collaboration with other Technical Bodies (TBs) may use new technologies (e.g. IP, CATV) or be extensions to terminals interfaces of existing technologies used normally in networks (e.g. xDSL, Optical). TC AT consists of four Working Groups:

- *WG Analogue:* Analogue Technologies
- *WG Digital:* Broadband/narrowband digital, data and multimedia technologies
- *WG Features:* features and functions for Telecom services
- *WG NGN@Home:* Next Generation Networks [NGN] in the home environment

and one Task Group:

- *TG Installations and Cabling:* Installations design and cabling practice.
- **TC BRAN (Broadband Access Networks):** BRAN is the core competence centre within ETSI for broadband radio access networks. BRAN is responsible for all aspects of standardization for present and future broadband radio access networks, including:
  - radio and regulatory aspects,
  - lower layer protocol aspects,
  - architectures, transmission and inter-working aspects of access networks,
  - aspects of transport network interfaces, utilizing both existing and emerging technologies.

BRAN is responsible for ETSI deliverables addressing base specifications and the appropriate test specifications required to achieve interoperability of BRAN-compliant access technologies. This work is in line with, and driven by, the commercial objectives of the ETSI membership.

BRAN is structured as a single technical body, with several vertical working groups providing core competence areas that are responsible for a programme of activities to meet the overall objectives of BRAN. In addition to these core areas, there is a horizontal competence working group addressing spectrum regulatory issues across the core vertical working groups.

BRAN has the primary responsibility for the production and the approval of deliverables falling into the following broad technical competence areas, including related standards intended to be used for regulatory purposes:

- HiperLAN (High Performance Local Area Networks)*
- HiperACCESS (High Performance Access Networks)*
- HiperMAN (High Performance Metropolitan Area Networks).*

The primary focus of the work carried out in the above competence areas is on the standardization of the lower layers whereas core network issues, user and service issues and higher layer protocol aspects are not part of the prime work areas of BRAN. The list of BRAN competence areas may be extended in future if required.

In addition to the above-mentioned vertical working groups for the competence areas, a further horizontal working group addresses essential regulatory issues:

- *RC-WG (Regulatory Competence Working Group).*

Generally, BRAN closely follows the standardisation work in other bodies, in order to avoid unnecessary duplication and, when appropriate, collaborates with relevant other bodies to create world-wide unique standards.

- **TC BROADCAST:** BROADCAST is a joint EBU/CENELEC/ETSI Technical Committee which co-ordinates the drafting of standards in the field of broadcasting and related fields. The committee assesses the work performed within e.g. DVB, WorldDAB and is responsible for broadcast systems (emission-reception combination) for television, radio, data and other services via satellite, cable and terrestrial transmitters. CENELEC is responsible for the standardization of radio and television receivers (TC 203, 206, 209). Main technical activities include:
  - Digital Video Broadcasting (DVB) and Multimedia Home Platform (MHP)
  - Digital Audio Broadcasting (DAB)
  - Analogue TV: Programme Delivery Control (PDC), Wide-Screen Signalling (WSS), Electronic Programme Guide (EPG), Teletext, NICAM, PAL/SECAM ghosting
  - Analogue RADIO: DATA Radio Channel (DARC) and VHF FM Sound Broadcasting Transmitters.
- **TC DECT (Digital Enhanced Cordless Telecommunications):** The DECT™ Technical Committee has overall responsibility within ETSI for the development and maintenance of standards for Digital Enhanced Cordless Telecommunications (DECT™) and the further evolution of DECT™. DECT™ is a registered trademark of ETSI in Europe for the benefit of ETSI Members. The main objectives are:
  - To complete the family of standards for DECT™, so as to ensure that the required DECT™ specifications are available in a timely manner, for successful design, implementation and marketing of DECT™ equipment, services and facilities.
  - To collect new requirements for cordless systems and to further evolve the standard to fulfil new market requirements.
  - To liaise directly with bodies inside ETSI on matters relevant for the development of the standards.
  - To work within the objectives and timescales as stated in its ETSI work programme.

## D18 – COPRAS reverse mapping report

- To develop, support and maintain standards for DECT™ that utilise the full potential of DECT™ as a network access technology, and that extend its applications and its inter-working with other systems/networks.
- To ensure that the family of DECT™ standards are consistent and coherent and of high quality.

The external relations include:

- Liaison with the DECT™ Forum (operators and manufacturers) to take on board industry wide opinion and market requirements.
  - Coordination with TIA TR 41.6 for issues on DECT™ related standards in USA.
  - Cooperation with ITU to promote DECT™ as family member of 'International Mobile Telecommunications' (IMT) and to provide input for the update of the IMT-2000 recommendations.
- **EcmaTC32: Communication, Networks and Systems Interconnection:** According to the co-operation agreement between ETSI and Ecma International, Ecma TC32 acts as the ETSI core competence centre for communications, networks and systems interconnection in the field of private/ corporate telecommunications. This includes architecture, service, protocol, interoperability, management and application aspects of Corporate Telecommunication Networks (CNs). CNs include narrowband and broadband Private Integrated Services Networks (PISNs) and private networks based on the Internet Protocol (IP). In particular the field includes the following:
    - Computer Supported Telecommunications Applications (CSTA): Task group TC32-TG11 is chartered to develop and refine the CSTA standard. CSTA specifies Applications Programming Interfaces (APIs) and protocols for monitoring and controlling calls and devices in a communications network. These calls and devices may support various media and can reside in various network environments such as IP, Switched Circuit Networks and mobile networks. CSTA however, abstracts various details of underlying signalling protocols (e.g. SIP/H.323) and networks for the applications.
    - Architecture, service and protocol aspects of narrowband and broadband Private Integrated Services Networks (PISNs): Task group TC32-TG14 is chartered to maintain Standards and Technical Reports for services and signalling in Private Integrated Services / Corporate Networks (PISNs/CNs).
    - IP-based multimedia communications in a business environment, including interoperability of narrowband and broadband PISNs with IP networks : Task group TC32-TG17 is chartered to develop Standards and Technical Reports for IP-based multimedia communications in a business environment.
    - Near Field Communications: Task group TC32-TG19 is chartered to develop Standards and Technical Reports for Near Field Communication Systems, for the realization of simple wireless communication between close coupled devices for network products and consumer equipment.
  - **TC EE (Environmental Engineering):** ETSI EE is responsible for defining the infrastructure and environmental aspects for all telecommunications equipment, including that installed at subscriber premises. The main standard produced and maintained by EE is ETS/EN 300 019; a multi-part deliverable covering environmental conditions and environmental tests for telecommunications equipment. This is divided in two parts and respectively 8 subparts. Part 1 specifies different standardized environmental classes covering climatic and biological conditions, chemically and mechanically active substances and mechanical conditions during storage, transportation and in use. Part 2 specifies the recommended test severities and test methods for the different environmental classes.

The EE2 working group deals with power supply issues. Power distribution, earthing and bonding techniques and Interface A are some of the issues they cover. Mechanical standards covering racks and sub-racks are covered in ETS 300 119.

The EE Thermal Management Group (EE-TMG) deals with reviewing and updating the ETS 300 119 series standards; specifically the thermal management for equipment and facilities.

- **SC (Special Committee) EMTEL on Emergency Communications:** The activities of SC EMTEL follows the broad areas of:
  - preparation of ETSI deliverables used to describe requirements for Users, Network Architectures, Network Resilience, Contingency planning, Priority Communications, Priority Access Technologies (e.g. Twisted Pair, Cable/ HFC, Satellite, Radio Frequencies/ fixed and mobile, new solutions) and Network management;
  - studies of the issues related to National Security and Public Protection and Disaster Relief (PPDR);
  - provision of mechanisms for the effective liaison between ETSI TBs and with organizations such as local, national and regional Government Authorities, the EU Commission, Civil Protection and Disaster Relief and Emergency or Security Authorities/Organisations;
  - identification of relevant work outside ETSI that can assist in the stimulation of appropriate activity in ETSI TBs;
  - co-operation with EU projects (e.g. E-call on Automatic Crash Notification) and other related standards projects;
  - co-ordination of the setting of emergency communication requirements in order to produce a consistent set of ETSI deliverables and to undertake measures to efficiently continue and stimulate further coordinated EMTEL related work within the ETSI Technical Organization.

SC EMTEL would also provide ETSI with a centre of expertise in the area of requirements for Emergency Communications and be able to offer advice to ETSI Technical Bodies, the ETSI Board and the General Assembly.

- **TC ERM (EMC and Radio Spectrum Matters):** ETSI ERM is a "horizontal" technical committee that is responsible for the standardization of electromagnetic compatibility (EMC) and radio spectrum matters on behalf of all other technical bodies of ETSI. The work of ETSI ERM can be considered in three main areas:
  - *Electromagnetic Compatibility:* The Electromagnetic Compatibility (EMC) working group is responsible for all ETSI Harmonised Standards related to the EMC Directive (89/336/EEC) and article 3.1b of the R&TTE Directive (1999/5/EC). This group is also responsible for liaison on behalf of ETSI with CENELEC on EMC issues and with CISPR.
  - *Radio Spectrum Matters:* The Radio Matters (RM) working group is responsible for co-operation with the European Radiocommunications Committee (ERC) to secure appropriate spectrum allocations in the CEPT countries for standardised systems, in order to ensure co-existence between different communications systems standardised by ETSI.
  - *Task Group activities:* ERM has a number of task groups which are set up on a short-term basis to deal with particular issues, and which disband on the resolution of the task (It must be stressed that the ERM Structure has recently changed. Indeed, ERM Radio Project activities ("old" RP groups) do no longer exist as they were divided into task groups after ERM meeting #16):
    - Aeronautical radio (TG25)
    - Maritime radio (TG26)
    - Standardisation of land-mobile radio, including Wideband data systems (TG11), generic short-range devices (TG28), Ultra Wide Band for telecommunications and radiolocations activities (TG31a), Private/Professional Mobile Radio (TG32), Digital Mobile Radio (TG32 DMR), RF Identification Devices (TG34) and Harmonised Standards for IMT-2000 equipment (TFES)
    - Automotive, including automotive EMC (TG04) and Road Transport & Traffic Telematics (TG29), Ultra wideband radar (TG31b).
    - Wireless medical devices (TG30)
    - Broadcast and ancillary equipment (TG17)
    - Radio Site Engineering (TG27)



## D18 – COPRAS reverse mapping report

- Measurement Uncertainty (TG33)
- Co-ordination of ETSI inputs to GSRC#1 (TG35)
- Intelligent Transport Systems (TG37)
- CDMA PAMR (TG38)
- CDMA (TG39).

ETSI TC ERM is responsible for 75% of standards being developed under the Radio and Telecommunications Terminal Equipment (R&TTE) Directive (1999/5/EC).

- **TC ESI (Electronic Signatures and Infrastructures):** TC ESI is responsible for Electronic Signatures and Infrastructures standardization within ETSI. TC ESI is the lead body within ETSI in relation to Electronic Signatures and Infrastructures, including the preparation of reports and other necessary activities, by:
  - Developing generic standards, guides and reports relating to electronic signatures and related trust infrastructures to protect electronic transactions and ensure trust and confidence with business partners
  - Liaising with other ETSI bodies in relation to electronic signatures and related trust infrastructures
  - Liaising with bodies external to ETSI in relation to electronic signatures and related trust infrastructures
  - Establishing a continuing work plan in relation to electronic signatures and related trust infrastructures.
- **TC HF (Human Factors):** ETSI HF is the committee responsible for standards and guidelines dealing with ease of use and accessibility of telecommunication equipment and services, including the requirements of older and disabled people.

Human Factors is the scientific application of knowledge about the capacities and limitations of users with the aim of making products, systems, services and environments safe, efficient and easy to use. The growing complexity of telecommunication services and equipment makes this aspect more and more important. Human Factors is a key factor for the commercial success of any telecommunications product or service.

ETSI HF has representatives from research bodies, manufacturers, service providers, users and consumers. It contributes to the following work areas:

User interfaces for the:

- Internet
- Mobile communications
- Multimedia and Video telephony
- Network management
- Numbering, and user identification

HF also maintains the ETSI register of supplementary service codes.

ETSI HF supports the aims of the European Commission to permit universal access to information and communication technology (ICT) by producing the necessary standards on the means to accommodate the needs of the disabled and the growing numbers of older users. It is currently drawing up European guidelines on relay services for the deaf.

Ongoing work on user identification in future converging services and networks such as the Universal Mobile Telecommunications System (UMTS™) could lead to alternatives to the use of long telephone numbers by the introduction of more meaningful methods of contacting people.

- **TC LI (Lawful Interception):** Lawful interception plays a crucial role in helping law enforcement agencies to combat criminal activity. Lawful interception of public telecommunications systems in each country is based on national legislation in that country. The purpose of standardization of lawful interception in ETSI is to facilitate the economic realization of lawful interception that complies with the national and international conventions and legisla-

tion. The Technical Committee on Lawful Interception (TC LI) is the leading body for lawful interception standardization within ETSI. Lawful interception standards have also been developed by ETSI technical bodies AT, TISPAN, TETRA, and by 3GPP™.

- **TC Methods for Testing and Specification (MTS):** MTS is responsible for the identification and definition of advanced specification and testing methods, which take advantage of innovative techniques to improve the efficiency and economics of both the standard description and associated conformance and interoperability testing processes.

Methodologies are established, in co-operation with the relevant Technical Committees, for future use in the development of standards, and of testing specifications, including interoperability issues.

In the definition of specification methods and languages, the applicability of existing international standards to the requirements of ETSI standardization will be considered.

MTS is the steering committee for the definition of the methodologies for "Protocol and Testing Competence Centre (PTCC)". Together with the PTCC, TC MTS develops the background material for the use within the PEX group. MTS does field trials and pilot applications of new methods, in order to make sure that they are ready for the daily life at ETSI.

- **TC PLT (Power-Line Telecommunications):** PLT is responsible for standardization of the networks, their elements and interfaces for providing communications on electrical wires. PLT develops ETSI deliverables to provide communications via the existing low, medium and high voltage power lines.

PLT will progress the necessary ETSI deliverables to cover the provision of multimedia, voice and data communications over the power lines, for example to access and in-house networks. The standards will be developed in sufficient detail to allow coexistence and interoperability between equipment from different vendors, including inputs from CENELEC in those areas that have been agreed to be in their responsibility.

The TC is active in the following areas, when appropriate in collaboration with other technical bodies:

- PLT Networks using the low, medium or high voltage power lines
- Architecture, functions and performance for PLT networks
- Coexistence and interoperability between systems whenever PLT is involved
- PLT relevant Interfaces and protocols

PLT works closely with:

- PLCforum
- CENELEC (Work repartition agreements between CENELEC and ETSI is followed when progressing the ETSI deliverables)
- IEC CISPR (via CENELEC)

In addition, for the following related issues, PLT works closely with CEPT ECC, CENELEC (on EMC issues) and ITU (via TC ERM)

- **ETSI Project RT (Railway Telecommunications):** RT is Responsible for those aspects of Global System for Mobile communications (GSM™) standardization which are specific to Railway and Private Mobile Radio (PMR) operations (GSM-R).

The GSM-R standard implements a number of applications and requirements specific to the railway environment, which use the common GSM platform. Thirty two members of the Union Internationale des Chemins de Fer (UIC) have signed a Memorandum of Understanding (MoU) supporting GSM-R for their radio applications.

GSM-R has now been selected by nearly all the European railways. Eighteen railways have already signed an Agreement of Implementation (AoI) to start implementation of the essential requirements, and additional countries in Eastern Europe and around the world are backing this ETSI standard.

Supported by a group of specialists and funded by its railway and industry members, ETSI Project Railway Telecommunications is continuing the work of ETSI's former Special Mobile Group, which accomplished the original standardization of GSM-R. EP RT's main task is to maintain the specifications for the use of GSM, to meet the requirements of the railways, and to update and develop the existing ETSI standards in response to relevant European Directives. This will include the use of the General Packet Radio Service (GPRS) in railway applications, and its interoperability with GSM-R. In addition, first implementations have raised issues on specifications and roaming for international trains, which are currently being addressed.

- **TC SAFETY (Telecommunications Equipment Safety):** The activities of TC Safety will thus fall largely into four broad areas:
  - to identify telecommunications equipment safety requirements including those which are essential requirements of Directives;
  - to map the telecommunications equipment safety requirements onto those which are laid down in IEC 60950;
  - to consider the safety requirements as laid down in IEC 60 065 which are relevant in cases where consumer electronic equipment is combined with telecommunications equipment, e.g. Set Top Boxes;
  - preparation of ETSI deliverables (mainly guidance on how to refer to safety requirements);
  - co-ordination of ETSI positions for liaison with outside bodies.

ETSI Safety also provides ETSI with a centre of technical expertise in the safety fields, able to offer advice to ETSI Technical Bodies, the ETSI Board and the General Assembly.

- **SC (Special Committee) Security Algorithms Group of Experts (SAGE):** The Security Experts Group is responsible for creating ETSI reports (containing confidential specifications), draft I-ETSS and ETSS in the area of cryptographic algorithms and protocols specific to fraud prevention/unauthorized access to public/private telecommunications networks and user data privacy.

The group provides a service to all ETSI TCs and organizations with whom ETSI has a formal relationship with e.g. other European standards bodies. The full requirements (formal external specification, target dates, commercial objectives etc.) are defined by the sponsoring TC and SAGE. The TC is responsible for getting the agreement of the General Assembly or Board as appropriate for inclusions in the ETSI Work Programme of items which are to be carried out by the Group and for allocating the budgets needed to carry out the work.

The requirements set by the Technical Committee (or outside body) and SAGE shall define the confidentiality of the resulting output of the Group. The output shall either be open or confidential. Open output is passed to the sponsoring Technical Committee and handled by the normal Working Procedures. Confidential output is passed to the Director and released to those having received a written confidentiality undertaking.

- **ETSI Project Smart Card (SCP):** The main responsibilities of EP SCP are:
  - development and maintenance of a common IC card platform for all mobile telecommunication systems;
  - development and maintenance of the application independent specifications for the Integrated Circuit Card/Mobile Equipment interface of those telecommunication systems under the responsibility of ETS;
  - development and maintenance of IC card standards for general telecommunication purposes;
  - development and maintenance of IC card standards employing advanced security methods for telecommunications applications such as financial transactions over Mobile Telecommunication Networks ("mobile commerce").

SCP established 3 Working groups:

## D18 – COPRAS reverse mapping report

- The purpose of the SCP Working Group 1 (WG1) is to maintain and evolve interface specifications for an inter-operable, multi-application IC card platform (UICC) and develop supporting documentation and models for these specifications.
- The purpose of SCP Working Group 2 (WG2) is to develop and maintain specifications and develop supporting documentation for advanced security methods for applications on the UICC platform such as financial transactions over mobile telecommunication networks (“mobile commerce”).
- The purpose of the SCP Working Group 3 (WG3) is to maintain, evolve and support the Card Application Toolkit and the Application Programming Interface specifications of the UICC platform.
- **TC Satellite Earth Stations and Systems (SES):** TC SES is responsible for all aspects relative to satellite communications. The field includes:
  - All types of satellite communication services and applications (including mobile and broadcasting);
  - All types of earth stations and earth station equipment, especially the radio frequency interfaces and network and/or user interfaces;
  - Protocols implemented in earth stations and satellite systems.

The following Working Groups have been established within SES:

- *WG Broadband Satellite Multimedia (BSM)* - for satellite systems that are intended used for high quality interactive (two way) multimedia communications;
- *WG ECSS* - covers the Space Operations Services as defined in the ITU-R Radio Regulations Article S.1. The WG ECSS is the focal point in ETSI for liaising with ECSS within the framework of the Co-operation Agreement of ETSI and the European Co-operation for Space Standardization (ECSS).
- *WG Geo -Mobile Radio Interfaces (GMR)* - prepares and maintains technical specifications (TSSs) for radio interfaces for Geostationary Earth orbit satellite access to the core network of GSM.
- *WG on Harmonization under the R&TTE Directive 99/5/EC* – is responsible for the preparation of Candidate Harmonized Standards under the R&TTE Directive (99/5 EC).
- *WG on KU-band Satellite Aircraft Earth Stations* - is in charge of developing a new candidate harmonized standard for compliance to the essential requirement of Article 3.2 the R&TTE Directive applicable to satellite Aircraft Earth Stations (AES) operating in the Ku-band (11/12/14 GHz bands), for the provision of non-safety data services on board civil airplanes.
- *WG on Maritime and Railways Satellite Earth Stations on Board, Vessels and Trains* – includes all type of Earth Stations installed on ship, vessel, or train operating in all type of frequencies MSS, FSS and BSS.
- *WG Satellite Digital Radio (SDR)* - produces Technical Specification(s) or other ETSI deliverables for a Satellite Digital Radio system.
- *WG on Satellite UMTS™/IMT2000* - covers the Satellite component of the Universal Mobile Telecommunication System (S-UMTS) and of the International Mobile Telecommunications (IMT-2000). It is the focal point in ETSI for liaising with the relevant bodies inside and outside ETSI on matters concerning the development of standards for S-UMTS/IMT2000.
- **TC Speech processing, Transmission and Quality Aspects (STQ):** STQ is responsible for standardization relating to speech and media quality, end-to-end speech transmission performance, Quality of Service (QoS) parameters for networks and services and distributed speech recognition.

The objective of STQ is to ensure the co-ordination, production (where appropriate) and maintenance of end-to-end quality related deliverables, for the timely and economic development of equipment for use with existing and future fixed/mobile network telecommunications service offerings from network operators.

TC STQ should form the ‘horizontal’ technical nucleus for speech processing, transmission and quality aspects. STQ is focusing work on the following main areas: Voice over IP (VoIP); excessive acoustic pressure and relevant measurement methods; wideband speech, including terminals, modelling and assessment; and user-oriented QoS (for Internet Protocol (IP), fixed and mobile services). TC STQ works in close co-operation with all relevant TCs and EPs within ETSI and 3GPP. TC STQ contributes to work relating to speech performance and QoS within the ITU-T and other standards bodies.

The *Aurora* WG is supporting the implementation and proper application of their standards delivered so far.

The working group on *Mobile Services* (STQ Mobile) is currently updating the seven-part Technical Specification on QoS aspects for popular services in Global System for Mobile communication (GSM™) and Third Generation networks. The group widened its scope to include picture and video quality.

The work area of STQ covers dedicated tasks which are of relevance to the European Regulatory Framework for electronic Communications Networks and Services.

- **TC Terrestrial Trunked Radio (TETRA):** TC TETRA is to produce ETSI deliverables (and maintenance thereafter) in accordance with the following requirements:
  - The provision of user driven services, facilities and functionality as required by traditional Professional Mobile Radio (PMR) user organizations such as the Emergency Services, Government, Military, Transportation, Utility and Industrial organizations as well as Public Access Mobile Radio (PAMR) Operators.
  - The evolution and enhancement of TETRA as required by the market with the provision of new services, facilities and functionality made possible by new technology innovations.
  - Further enhancements of the TETRA air interface standard in order to provide increased benefits and optimization in terms of spectrum efficiency, network capacity, system performance, quality of service, and other relevant parameters.
  - The full backward compatibility and integration of the new services, facilities and functionality with existing TETRA standards in order to future-proof the existing and future investments of TETRA users.

TETRA is one of a number of digital wireless communication technologies standardised by ETSI. ETSI TC TETRA shall produce standards for a frequency spectrum efficient digital PMR and PAMR system to support voice and data services using techniques such as Trunking, Time Division Multiple Access (TDMA) methods in narrow band RF channels and/or a variety of efficient modulation schemes in multiples allocations of narrow band RF channels for increased data throughput. TETRA has the following WGs:

- TETRA User Requirements / Services
  - TETRA Network aspects
  - TETRA High Speed Data
  - TETRA Voice coding
  - TETRA Security
  - TETRA DMO.
- **TC TISPAN:** TISPAN is the ETSI core competence centre for fixed networks and for migration from switched circuit networks to packet-based networks with an architecture that can serve in both.

TISPAN is responsible for all aspects of standardisation for present and future converged networks including the NGN (Next Generation Network) and including, service aspects, architectural aspects, protocol aspects, QoS studies, security related studies, mobility aspects within fixed networks, using existing and emerging technologies. This work is in line with, and driven by, the commercial objectives of the ETSI membership.

## D18 – COPRAS reverse mapping report

TISPAN is structured as a single technical committee, with core competencies, under which there are Working Groups and Project Teams. Working Groups have specific core responsibilities, technical competencies, and a programme of activities to meet their objectives. Project Teams are responsible for driving the work forward within a defined set of time-scales and objectives:

- *TISPAN WG1 (Competence centre for NGN Services)* – is standardizing service descriptions from the user perspective, for networks under NGN Services responsibility and preparing inter-working descriptions for service inter-working across networks.
- *TISPAN WG2 (Competence centre for network and system architecture)* - is responsible for:
  - Network Intelligence, Universal personal and terminal mobility, NGN architectures and Home Environment functional and architectural requirements; including the definition and the use of an overall functional architecture;
  - Standards development activities related to Network architecture and its evolution, including inter-working and IP matters at the service, transport and control level.
  - Studies on the functions, and the reference points required for inter-working between the emerging new architecture networks and legacy networks (IN / ISDN / PSTN).
  - Definition and analysis of Functional Entities, Message Sequences and Information Elements.
  - Responsibility for the extension of the TIPHON Meta-protocol
  - Studies on the functional requirements that Service Providers have when accessing the networks of PTNOs in the fulfilment of the Special Network Access directives of the EU; including functional interfaces for Third Party Service APIs.
  - Studies in the field of third generation mobility systems (e.g.: IMT-2000 and UMTS) concerning inter-working with existing and emerging IP-based Core Networks. This includes Inter-access-system inter-operability, mobility and registration.
- *TISPAN WG3 (Competence centre protocols definitions)* - is responsible for defining all aspects of Protocols: protocol definition, protocol requirements, protocol mapping, protocol profiles, analysis of protocols developed by other bodies, protocol extensions and inter-working specifications.
- *TISPAN WG4 (Competence centre for Numbering, Naming, Addressing and Routeing)* is responsible for:
  - Conducting studies leading to deliverables on: numbering, naming, addressing and routeing;
  - Co-ordination of the above work areas within ETSI and providing support as appropriate to other ETSI TBs on contributions to ITU-T SG2;
  - Addressing and Naming translation
  - Representing ETSI at the ENF (European Numbering Forum)
  - Collaborating with ERO (the European Radio Office) on European numbering, naming and addressing issues;
  - Representing ETSI at the ETNS Steering Committee.
- *TISPAN WG5 (Competence centre for Quality of Service & Network Performance)* is responsible for conducting studies leading to deliverables on:
  - Application- and user-centric quality of service (QoS) parameters, objectives and measurement methods;
  - Network-centric performance (NP) parameters, objectives and measurement methods necessary to meet the identified QoS objectives;
  - Determining the requirements of the protocols necessary to allocate and manage network resources to meet the identified QoS&NP objectives, for packet-based, circuit-switched and hybrid networks supporting multimedia services.
- *TISPAN WG6 (Competence Center for Testing)* is responsible for:
  - Management and co-ordination of the development of the testing specifications for the next generation telephony;

## D18 – COPRAS reverse mapping report

- Providing testing specifications for TISPAN-developed specifications and profiles;
- Maintaining existing testing specifications as required;
- Tracking ongoing worldwide bake-off, interoperability, testing and certification activities of interest to TISPAN.
- *TISPAN WG7 (Competence centre for Security)* is responsible for:
  - Conducting studies leading to deliverables on Security;
  - Management and co-ordination of the development of security specifications for the next generation telephony and multimedia communications;
  - Investigation of security services and mechanisms required for providing services over the Internet;
  - Development of security analyses of candidate protocols and network elements to be used within the NGN framework to implement capabilities e.g., EMTEL aspects, IPv6 migration, keying strategies and methods;
  - Tracking ongoing worldwide security activities of interest to TISPAN.
- *TISPAN WG8 (Competence centre for Telecommunications Management)* is responsible for:
  - Developing a consistent and harmonised approach to Telecommunications Management across all disciplines and technologies under the umbrella of the ETSI Standardisation activities.
  - Telecommunications Management encompasses the management of all types of telecommunication equipment, networks, services and although biased to the Telecommunications Management Network (TMN).
- **TC (Transmission and Multiplexing):** TM is responsible for all aspects of standardization of transport networks and their elements (including fixed radio systems, excluding satellite systems), and for transmission aspects of transport network interfaces. The field includes:
  - Transport network architecture (including protection issues)
  - Transmission issues of interfaces (i.e. layer 1)
  - Specification of the functions and performance of the elements of transport networks such as transmission paths, path elements, sections, systems, functional entities, antennas, cables and optical fibres.
  - *WG TM 1 - Core networks, fibres and cables* provides:
    - Specification of functional requirements for transmission equipment, including line equipment, multiplexers and cross-connectors.
    - Specification of optical aspects of transmission systems.
    - Specification of network topology and functional requirements.
    - Specification of transmission related optical components, especially optical fibres and passive components.
    - Specification of requirements for optical fibre and optical cable characteristics related to transmission system performance.
    - Digital hierarchies, digital sections.
    - Specification of functional and physical characteristics of NNI, including allocations of overheads.
    - Specification for network jitter, delay and synchronization in transport networks.
    - Transport network protection and survivability.
  - *WG TM 4 - Fixed radio systems* provides:
    - Specifications for point-to-point and point-to-multipoint radio systems, in the fixed service used in core and access networks, covering all equipment aspects including antenna parameters. Radio-frequency matters that may affect CEPT/ERC radio-frequency policy and management are excluded.
    - Functional requirements for radio-frequency equipment interface, including allocation of overhead.
    - Proposals to CEPT, in co-ordination with ETSI WG ERM/RM, for channel arrangements in the frequency bands allocated to fixed service and for new bands allocation.

- Maintain liaisons and co-operations with other ETSI Bodies, CEPT/ERC, ITU-R, ITU-T and other relevant standardisation groups on the above mentioned issues and other aspects relevant to fixed radio systems and related network design.
- Coordination with TM1 and TM6 for core and access network architecture to include fixed radio systems in those networks.
- *WG TM 6 - Access networks* is responsible for:
  - Access transmission systems on metallic cables.
  - Functional requirements for transmission equipment interfaces.
  - Specification of functional and physical characteristics of UNI including allocations of overheads.
  - Maintain liaison with other bodies working on the same aspects, notably ITU-T/SG 13 and SG 15, ANSI T1E1, ADSL Forum, FSAN.
- **SC (Special Committee) User Group:** ETSI User Group's standardization aims:
  - To establish reports on users' requirements pertaining to topics previously defined by either the ETSI User Group, or other relevant ETSI bodies for recommendation to the ETSI Board and GA. These reports on a given topic analyse the users' requirements under a functional approach in order to improve the standardization work.
  - To be available for consultation with technical body chairmen on users' needs. For this, the ETSI User Group Team is in charge of orienting and distributing consultative questions to pertinent users within the user population at large.
  - To organize ETSI User Group meetings which are open to the general public in order to promote ETSI Standards amongst the user community and to facilitate the exchange of viewpoints on current issues.

## 3.2 Fora and consortia

### 3.2.1 Digital Video Broadcasting (DVB) Project

The Digital Video Broadcasting Project (DVB) includes over 220 well known organisations in more than 30 countries worldwide. Members include broadcasters, manufacturers, network operators and regulatory bodies, committed to designing a global family of standards for the delivery of digital television.

DVB-compliant digital broadcasting and reception equipment for professional, commercial and consumer applications is widely available on the market, distinguished by the now instantly recognisable DVB Logo. Numerous broadcast services using DVB standards are now operational, in Europe, North and South America, Africa, Asia, and Australasia.

The DVB Project has generated international standards for all programme delivery media: satellite, cable, terrestrial, microwave, MDS, CATV, SMATV. Equipment compliant to DVB standards dominates the marketplace and DVB transmissions are on the air over all five continents.

DVB systems deliver a flexible range of picture qualities, multi-channel sound, multimedia data, and the entire configuration can be tailored to meet the demands of any service provider and market. For each specification, a set of User Requirements is compiled by the Commercial Module. These are used as constraints on the specification. User requirements outline market parameters for a DVB system (price-band, user functions, etc.). The Technical Module then develops the specification, following these user requirements. The approval process within DVB requires that the Commercial Module supports the specification before it is finally approved by the Steering Board.

Following approval by the Steering Board, DVB specifications are offered for standardisation to ETSI or CENELEC, through the EBU/ETSI/CENELEC JTC (Joint Technical Committee), and internationally to the ITU-R, ITU-T and DAVIC. Principal topics include:

- **TM-AVC - Audio-visual Coding Formats:** The AVC Group works on all technical issues related to the representation and synchronisation of audio and video content in DVB services, including those delivered over MPEG-2 Transport Streams and IP networks.



- **TM-CAS - Cascading of Transmission Links:** The DVB Cascading of Transmission Systems sub-group was formed in 1996 to answer requirements from DVB members to develop a standardised mechanism for the delivery of DVB MPEG-2 Transport Streams (as defined in ISO/IEC 13818-1) through standard PDH and SDH networks.
- **TM-CBMS - Convergence of Broadcast and Mobile Services (previously known as TM-UMTS):** The ad hoc Group CBMS (Convergence of Broadcast and Mobile Services) was formed in March 2001 (under the name UMTS) to draw up technical specifications and guidelines for applications and services that utilise 'co-operation' between broadcast and mobile telecommunications platforms.

In 2003 the group produced early specifications of the interface to the terminal in order to enable early trial deployments. In 2004, a set of detailed technical requirements were generated for an "IPDC in DVB-H" system. These requirements are the basis of the fundamental specification work for IPDC systems. The system specifications intend to focus on functionality, enabling delivery of IP-based services to small, personal, mobile handheld and portable terminals like cellular phones and PDA.

- **TM-CIT - Common Interface Technical Aspects:** The Common Interface Technical Aspects group started at the beginning of 1998. It was tasked with enlarging the existing Common Interface standard EN 50221 to allow for additional features like satellite side-car, assistance for handicapped people, software download, and the like. These requests came mainly from the UK Digital Terrestrial market. The group delivered a proposal (DVB A053) that became ETSI TS 101 699 in November 1999. This group is currently inactive.
- **TM-CPT - Copy Protection Technologies:** The CPT group is working to define a CPCM system which will serve to provide interoperable, end-to-end copy protection in a DVB environment, regardless of network topography, whilst being able to interface, where possible, with existing proprietary copy protection systems.
- **TM-DSNG - Digital Satellite News Gathering:** Around 1996 and 1997 many operators started using the successful DVB-S (EN 300 421) standard for the delivery of occasional DSNG (Digital Satellite News Gathering) services over satellites. While not specifically designed for such operations, the DVB-S standard performed quite well. This practical implementation led to DVB adding extensions to DVB-S, DVB-SI (EN 300 468) and MPEG (TR 101 154) to provide support for these services.

The DVB-DSNG group was formed and produced the following DVB standards:

- EN 301 210 V1.1.1 (02/99) Framing structure, channel coding and modulation for Digital Satellite News Gathering (DSNG) and other contribution applications by satellite;
- TR 101 221 V1.1.1 (03/99) User guideline for Digital Satellite News Gathering (DSNG) and other contribution applications by satellite;
- EN 301 222 V1.1.1 (07/99) Co-ordination channels associated with Digital Satellite News Gathering (DSNG).

The DVB-DSNG activities have largely been superseded by the DVB-S2 activity.

- **TM-GBS - Generic Data Broadcasting & Service Information Protocols:** The group has two main working areas:
  - Metadata: Definition of all information pertaining to the location, identification and characterisation of DVB services and programme events. The group also specifies mechanisms and protocols for the conveying of such information.
  - Generic Data Broadcast: Definition of mechanisms and protocols for the broadcast of non-audiovisual content for both streaming and non-streaming modes. This includes the case of tunnelling for other protocols (e.g. IP).
- **TM-H - DVB-H:** The current work is concentrating on finding technical solutions, based upon the DVB-T standard, that would meet the requirements with the highest possible com-

patibility with the current DVB-T. The Draft Standard for DVB-H was sent to ETSI in spring of 2004.

- **TM-Head – Simulcrypt:** The aim to follow on from the work previously achieved by the DVB Simulcrypt group on Head-end architecture and whose main objective had been to develop a technical solution enabling the use of several conditional access systems (CAS) synchronously in the same head-end and for the same content (Simulcrypt principle). The DVB Simulcrypt group had produced two ETSI standards:
  - TS 101 197 V1.2.1 (02/02) : DVB SimulCrypt; Part 1: Head-end architecture and synchronization;
  - TS 103 197 V1.2.1 (02/02) : Head-end Implementation of SimulCrypt.

Accordingly, the DVB SimExt group now works on :

- the editing of the implementation guidelines for the current Simulcrypt standard ;
  - the completion of the solution specified by the current Simulcrypt standard;
  - the extension of the current head-end (HE) architecture model with new functional components;
  - the specification of newly identified interfaces necessary to connect CAS components from several vendors to the appropriate HE equipment;
  - the standardization of other interfaces seen in the HE architecture model as being determinant to enhance the overall interoperability of the system and to make its integration easier.
- **TM-HMS - Hierarchical Modulation Splitters for DVB-T:** The Hierarchical Modulation Splitter group was formed some time ago with a very specific task and short timescale. The group was tasked to produce a set of guidelines for the implementation of splitters which could be used in head-ends for hierarchical modulation in DVB-T networks. HMS is now in "sleep mode".
  - **TM-IPI - IP Infrastructure:** The Goal of the IPI group is to specify technologies on the interface between an IP network and retail receivers, enabling the end user to buy a DVB-IP receiver in any shop, connect it to a broadband network, switch it on and, without further ado, start to receive DVB services over IP-based networks. The following describes the status of IPI's work:

Phase 1: IPI has finished the Phase 1 DVB-IP Handbook. This is aimed at early deployment of services, using MPEG-2 Transport Streams. Supported service profiles are Live Media Broadcast with and without trick modes (pause, fast forward, etc.) and Content on Demand. The Handbook specifies the interface on the Home Network End Device, enabling access to services delivered via an IP-based access network.

Phase 2: Phase 2 will address the new DVB content format, as specified by the TM-AVC group. Home networking will be dealt with in more detail than was possible in Phase 1. Authentication and data integrity issues will be taken into account.
  - **TM-MEG - MHP Experts Group:** The MHP Experts Group coordinates the development of 'Test Suites' for the different versions of the Multimedia Home Platform, DVB's middle-ware platform for interactive TV services, specified by the TM-TAM Group (see below).
  - **TM-MUG - MHP Umbrella Group:** The MHP Umbrella group specifies guideline specifications (the 'Globally Executable MHP') supporting the implementation of the MHP specifications developed by the TM-TAM Group (see below), in regions outside Europe..
  - **TM-RC - Return Channel:** The Return Channels group started in 1995 with the aim to produce specifications on return channel layer 1 and layer 2 protocols for interactive services. Its results include:
    - DVB-RCC (return channel for cable): ES 200 800; TR101 196
    - DVB-RCL (return channel for LMDS): EN 301 199; TR 101 205
    - DVB-RCT (return channel for terrestrial) : EN 301 958

## D18 – COPRAS reverse mapping report

- DVB-RCG: EN 301 195
- DVB-RCP: ETS 300 801
- DVB:RCCS: TR 101 201; TR 101 290

The group is currently inactive.

- **TM-RCS - Return Channel – Satellite:** It has been designed to incorporate the possibility of producing lower cost options for the Return Channel Satellite terminal equipment. The output will be published as the ETSI EN 301 790: Digital Video Broadcasting (DVB); Interaction channel for satellite distribution systems.
- **TM-S2 - Study mission for enhancements to DVB-S:** The DVB-S2 ad-hoc group of the TM has the task of developing a successor to the current DVB-S standard (EN 300 421) and DVB-DSNG standard (EN 301210), that may be introduced for new services and allow for a long-term migration. The primary objective of the new specification is to enable delivery of a significantly higher data rate (e.g. 30%) in a given transponder bandwidth than the current DVB-S standard. Three satellite application areas are considered:
  - Video and audio broadcasting (including a backwards-compatible mode, allowing old DVB-S receivers to decode at least part of the transmitted bouquet).
  - Interactive services (direct path), such as internet access, for the consumer market.
  - Professional links (SNG, contribution, internet trunking).
- **TM-SEC - TM Study Mission on Content Protection:** The TM Study Mission on Content Protection was established by the 55th TM meeting (Geneva, 31/03/04 - 01/04/04).
- **TM-SMI - Storage Media Interoperability:** This group started in early 1995 and was tasked with developing guidelines for parameters to be used in DVB broadcasting to make reliable recording on DVC tape recorders possible. The results of the first rounds of discussion are in the following documents:
  - DVB - SMI 028: Guidelines for Decoding from a Storage Medium;
  - DVB - SMI 029: Recommended Encoding Practices for Storage Media Interoperability.

SMI was "re-activated" in late 2000 to look into questions arising around the new concept of Personal Video Recording (PVR) or Personal Digital Recording (PDR). Special emphasis was on the question how to record interactive applications. The activity was started in parallel with the commercial work in the CM-PDR group. The SMI work was put on hold to wait for the commercial requirements from the CM-PDR group to emerge.

Although commercial requirements now exist, reduced interest has resulted in the group currently being inactive.

- **TM-SUB – Subtitling:** The Technical Module's group on Subtitling is one of the older ad-hoc groups, dating back to 1994. DVB Subtitling is an integral part of the DVB set of specifications, and its bitmapped mechanisms are a powerful value-added tool for operators. Under its current chairman, the subtitling group is responsible for the following standard:
  - EN 300 743 Digital Video Broadcasting (DVB); DVB Subtitling

The DVB-Subtitling Group is in "sleep" mode.

- **TM-TAM - Technical Aspects of MHP:** The TAM group was established in 1997 to develop the MHP specification. Since the first version of MHP 1.0 was completed, it has worked on enhancements to it (as found in MHP 1.1) as well as dealing with market feedback on the specification to produce successive maintenance releases. It has produced the following specifications;
  - MHP 1.0 (ETS 101 812 V1.1.1) in January 2000;
  - MHP 1.0.1 (ETS 101 812 V1.1.2) in March 2001;
  - MHP 1.1 (ETS 102 812 V1.1.1) in May 2001;
  - MHP 1.0.2 (ETS 101 812 V1.2.1) in February 2002.

It is currently working on what will become MHP 1.0.3 and MHP 1.1.1 and has 4 sub-groups:

- Java sub-group (inactive);
  - Application lifecycle, signalling & security sub-group (inactive);
  - DVB-HTML sub-group (active as necessary);
  - MHP specification maintenance subgroup (active).
- **TM-TAM-PCF - Group on Portable Content Formats:** No information is publicly available.
  - **TM-WIN - Wireless In-Home Networks:** The DVB-WIN Group published a technical survey on the various WLAN technologies at the beginning of 2002 and has established a liaison with European and international groups working on similar subjects. These are:
    - The DTG-Group on Wireless Home Networks (DTG-WHN) (<http://www.dtg.org.uk>);
    - The CEA R7.5-Audio Video Networking Standards Subcommittee (AVN) (<http://www.ce.org>).

There is great interest in the work of the group with nearly 100 people joining the reflector and participating in the discussions. However, the still very open regulatory framework for WLANs in the 5 GHz frequency bands and the non-availability of VLSI that can be used worldwide, have led to the specification work of the WIN group being put into "sleep mode".

The group will resume its work as soon as the situation concerning regulation and VLSI will become clearer.

### 3.2.2 European Broadcasting Union (EBU)

The European Broadcasting Union (EBU) is the largest professional association of national broadcasters in the world. The Union has 74 active Members in 54 countries of Europe, North Africa and the Middle East, and 47 associate Members in 26 countries further afield.

Working on behalf of its Members in the European area, the EBU negotiates broadcasting rights for major sports events, operates the Eurovision and Euroradio networks, organizes programme exchanges, stimulates and coordinates co-productions, and provides a full range of other operational, commercial, technical, legal and strategic services.

At its office in Brussels, the EBU represents the interests of public service broadcasters vis-à-vis the European institutions. The EBU also works in close collaboration with sister unions on other continents. Principal topics include:

- **Eurovision:** The Eurovision permanent network (up to 50 digital channels on a Eutelsat satellite) carries constant exchanges of TV news and programmes. Most news and sports pictures on European screens pass through the EBU.
- **Television:** Television cooperation extends to educational programmes, documentaries and co-productions of animation series, competitions for young musicians, young dancers and screenwriters. It also includes traditional light entertainment such as the Eurovision Song Contest.
- **Radio:** Radio collaboration covers music, news, sports, youth programmes, local and regional stations. Each year the Euroradio network relays 2,500 concerts and operas, and the Radio Department coordinates the transmission of 440 sports fixtures and 120 major news events.
- **Technical:** Cooperation in the technical sphere is one of the EBU's major activities. The Union is in the forefront of research and development of new broadcast media, and has led or contributed to the development of many new radio and TV systems: radio data system (RDS), digital audio broadcasting (DAB), digital television (DVB), high- definition TV (HDTV).

- **Legal Affairs:** From copyright to sports and news, from broadcast regulation to co-productions, from telecommunications to public service, wherever broadcasters are confronted with legal questions or regulatory challenges, the Legal Department provides assistance, prepares the ground for adopting common positions and represents and promotes/defends the Members' interests vis-à-vis the relevant international organizations and in professional forums.

### 3.2.3 European Committee for Banking Standards (ECBS)

The European Committee for Banking Standards (ECBS) was formed in December 1992 by Europe's three credit sector associations, the Banking Federation of the European Union (EBF), the European Association of Co-operative Banks (EACB), and the European Savings Banks Group (ESBG), collectively known as the European Credit Sector Associations (ECSAs).

The ECSAs represent the interests of the European banks from the countries of the European Union (EU), the European Economic Area (EEA), and the European Free Trade Association (EFTA). Observers include the European Central Bank, the major payment schemes (MasterCard Europe and Visa Europe), SWIFT and the Euro Banking Association (EBA). ECBS has a co-operation agreement with ETSI (European Telecommunication Standards Institute). During 2004, ECBS began to work closely together with the European Payments Council, aligning some of the committees and support functions, a process which is expected to continue during 2005 and beyond.

ECBS' primary aim is to enhance the European technical banking infrastructure by developing standards once clear business and commercial interests have been identified. ECBS produces technical reports and standard implementation guidelines aimed at assisting the European banking sector's application of relevant standards. At European and International levels, ECBS monitors related standards activities that could have an impact on the European banking community and provides a forum for voicing the European banking sector's opinion on relevant matters to the various standards and industry bodies. Principal topics include:

- **TC4 – Security:** It is a principal Technical Committee. The active WGs are as follows:
  - TC4/WG2 Certification Authorities
  - TC4/WG9 - Generic Guidelines on Algorithm Usage and Key Management
  - TC4/WG11 - ATM Security Guidelines
  - TC4/WG12 - Signing Mechanisms.

### 3.2.4 Ecma International

Ecma International is an industry association founded in 1961, dedicated to the standardization of information and communication systems. Ecma is the inventor and main practitioner of the concept of "fast tracking" of specifications drafted in international standards format through the process in Global Standards Bodies like the ISO. Since 1986, when fast tracking was introduced to ISO, over 75% of fast-tracked standards have been fast-tracked through Ecma.

Ecma is driven by industry to meet the needs of industry, generating a healthy competitive landscape based on differentiation of products and services, rather than technology models, generating confidence among vendors and users of new technology. Principal topics include:

- **Programming and Scripting languages (TC39):** The primary objective here is to standardize:
  - the syntax and semantics of the general purpose, cross platform, vendor-neutral scripting language ECMAScript;
  - ECMAScript for XML;
  - the programming language C# ( C "sharp");
  - the programming language Eiffel;
  - a Common Language Infrastructure (CLI);
  - a CLI binding for C++.
- **Communications, networks and systems interconnection (TC32):** The scope includes:

## D18 – COPRAS reverse mapping report

- To maintain an overall view and strategy for standardization in the field of private/corporate telecommunications, and to prepare Ecma Standards and Technical Reports required in this field.
- To monitor and pursue standardization at a global level with regard to ISO/IEC JTC 1 and the international standardization world in general.
- To work together with ETSI within the framework for standardization under the terms of the Co-operation Agreement between ETSI and Ecma, for publication of European standards and technical reports.
- To promote unified international standards.

The field of private/corporate telecommunications includes architecture, service, protocol, interoperability, management and application aspects of Corporate Telecommunication Networks (CNs). CNs include narrowband and broadband Private Integrated Services Networks (PISNs) and private networks based on the Internet Protocol (IP).

- **Product safety (TC12):** The scope includes national and international safety regulations to establish appropriate safety standards for information technology equipment so that they are intrinsically safe and safe for operating and maintenance personnel. The programme of work includes:
  - Surveying existing national and international standards and recommendations concerned with safety requirements;
  - Study of the safety requirements associated with power control and distribution and establish recommendations where appropriate;
  - Short circuit and over current protection, earthing, voltage exposure limits, mechanical design, etc., and establish recommendations where appropriate;
  - Development of principles and guidance to identify safeguards;
  - Investigations on functional safety aspects.
  - Responsibility for the maintenance of Ecma Standards prepared by TC12.
  - Establishment and maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments on their proposals.
- **Product-related environmental attributes (TC 38):** The purpose is to identify and describe the environmental attributes related to ICT (Information and Communication Technology) and CE (Consumer Electronics) products, during their entire life cycle, from conception to end-of-life treatment. The programme of work includes:
  - Development of recommendations, e.g. Standards, on environmental attributes and the presentation thereof for ICT and CE products;
  - Monitoring of the development of environmental standards, regulations, conformity schemes and other requirements related to ICT and CE products;
  - Promotion and maintenance of Ecma Standards covering product-related environmental attributes. To comment on standards and regulations from outside organizations;
  - Establishment and maintenance of liaisons with other organizations and other fora working in the same or similar fields of activity.
- **Acoustics compatibility (TC 26):** The scope includes recommendations on standards for determining the noise outputs of different categories of individual items of information technology equipment intended for use in defined working environments; standards for determining total noise levels in the said working environments, these standards to include corresponding methods of measurement; preferred methods of predicting total levels if units of known noise output are installed together. The programme of work includes:
  - Categorization of the acoustical environments in which information technology equipment is required to work.
  - Surveying of the various recommendations and requirements for the acoustical environments of these areas.

## D18 – COPRAS reverse mapping report

- Making recommendations for standard methods of measuring and specifying the noise output of equipment, taking into account the work of ISO/TC43.
  - Special requirements that may arise during non-standard operation, e.g. servicing.
  - Considerations on what information should be supplied by the manufacturer to facilitate optimum installation and to make recommendations.
  - Follow up on developments affecting acoustical environment in places of work.
  - Responsibility for the maintenance of Ecma Standards prepared by TC26.
  - Maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments on their proposals.
- **Electromagnetic compatibility (EMC) (TC 20):** The main objective is to study the condition necessary to guarantee reciprocal electromagnetic compatibility between information technology equipment and the external environment, to prepare corresponding standards and to contribute to international standardization. The programme of work includes:
    - Surveying of existing international and national standards concerned with electromagnetic compatibility.
    - Establishment of measuring methods and limits for electromagnetic interference generated by information technology equipment.
    - Establishment of standards for methods of assessment and suitable levels for the immunity of information technology equipment to electromagnetic interference.
    - Responsibility for the maintenance of Ecma Standards and Technical Reports prepared by TC20.
    - Maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments on their proposals.
  - **Optical disks and disk cartridges (TC31):** The objective is to identify and develop the minimum number of standards necessary for data interchange by means of optical data disks and disk cartridges. The programme of work includes:
    - Development of standards for optical disks and disk cartridges of 80 mm, 90 mm, 120 mm (both CD and DVD) , 130 mm, 300 mm and 356 mm.
    - Responsibility for the maintenance of Ecma Standards prepared by TC31.
    - Monitoring technological developments in the field of optical disks and disk cartridges.
    - Maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments to their proposals.
  - **Magnetic tapes and tape cartridges (TC 17):** To objective is to identify and standardize the minimum number of parameters necessary to ensure inter-changeability of magnetic tapes and tape cartridges using appropriate methods of recording and taking account of existing standards. The programme of work includes:
    - Development of standards for 3,81 mm, 6,30 mm, 8 mm and 12,65/12,7 mm wide magnetic tape cartridges.
    - Monitoring of the revision of International Standards for magnetic tapes and tape cartridges.
    - Development of standards for algorithms for the lossless compression of data.
    - Responsibility for the maintenance of Ecma Standards prepared by TC17.
    - Maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments on their proposals.
  - **Volume and file structure (TC 15):** The primary objective is to facilitate the interchange of information on media by specifying the format on the recorded structures that contain descriptive information about volumes and the files/directories recorded on the media. The programme of work includes:
    - Specifying volume and file structure standards for media used in interchange.
    - Specifying such standards so that they are independent, where possible, of the standards for the underlying medium.
    - Constitution of a coherent family of standards where possible.

## D18 – COPRAS reverse mapping report

- Responsibility for the maintenance of Ecma Standards prepared by TC15.
- Maintenance of liaisons with other standards organizations in order to present Ecma proposals to them and to make comments on their proposals.
- **Universal 3D (U3D) (TC 43):** The objective is to facilitate the reuse of 3D CAD data by developing global 3D standards intended for downstream 3D visualization applications. The programme of work includes:
  - Standardization of a Universal 3D extensible file format and infrastructure focused on the repurposing of 3D CAD data for non-engineering and non-design applications, e.g. training and visualization applications. Notable U3D features include binary encoding, domain-specific compression, continuous level of detail, progressive data representation, animation support, and extensibility to address evolving market needs.
  - Development of a usage and implementation strategy guide for users of U3D to be published as an Ecma Technical Report (TR).
  - Contributing to the Ecma U3D standards to ISO/IEC JTC 1 for approval and adoption by ISO and IEC.
  - Establishment and maintenance of liaisons with other standards organizations in order to present Ecma U3D proposals to them and to make comments on their proposals.
  - Upon completion of items 1 - 3, investigations on the future direction of 3D standards, and evaluations as well as proposals for complementary or additional technology, e.g. support for advanced physics based lighting and rendering applications.
  - Responsibility for the maintenance of Ecma Standards prepared by TC43.
- **Holographic Information Storage Systems (HISS) (TC 44):** The scope includes the maintenance of an overall view and strategy for standardization in the field of holographic information storage systems, and to identify and develop Standards, Technical Reports and Guidelines in this field. It also includes monitoring and pursuing standardization at a global level with regard to ISO/IEC JTC 1 and the international standardization community in general, including but not limited to the AV/IT and computer interfaces community. The programme of work includes:
  - Development of standards for media recorded by holographic means, based initially upon the Collinear Technologies for Holographic Versatile Disc - HVD; but not excluding other recording and multiplexing schemes for HVD.
  - Studying of existing Ecma and ISO labelling / volume and file structure standards and, where necessary, initiate and pursue the development of volume and file structure standards for media recorded by holographic means and used in information interchange.
  - Development of guidelines for the archival life, testing, maintenance and handling of media recorded by holographic means, and to specify end-of-life monitoring techniques, mechanisms and devices.
  - In the process of developing its standards, facilitation of the collaboration between the holographic information storage development communities, including the SPIE and the broader IT community.
  - Contributing to the standards to ISO/IEC JTC 1.
  - Monitoring the revision of International Standards for Holographic Information Storage.
  - Upon completion of items under 1 and 2, taking the responsibility for the maintenance of the Ecma standards.
  - Upon completion of item 5 and the publication of ISO/IEC Standards, effectuating the maintenance of the ISO/IEC Standards.
  - Maintenance of liaisons with appropriate other Ecma TCs and TGs and other holographic recording standards developing bodies, consortia, and fora.

### 3.2.5 EICTA



EICTA (European Communications and consumer electronics Technology Industry Association) is dedicated to improving the business environment for the European information and communications technology and consumer electronics (ICT and CE) sector, and to promoting the industry's contribution to economic growth and social progress in the European Union.

As the voice and principal advocate of the digital technology industry in Europe, EICTA:

- promotes the collective interests of the information and communications technology and consumers electronics sector;
- seeks to participate in the development and implementation of EU policies by helping European governments and institutions to understand future technology trends and how digital technologies can contribute effectively to sustain economic performance in Europe;
- seeks to facilitate long-term business generation for the digital technology industry in Europe by supporting the diffusion and usage of ICT and CE technologies.

Principal topics include:

- **Digital Economy:** The Digital Economy Policy Group (DEPG) aims to ensure that the European legislative framework keeps pace with the ongoing technological progress. Digital technology is making a deep and lasting impact on the way we live, work, communicate and interact. DEPG raises awareness of the benefits of ICT across the European economy, ensuring that legislation allows European citizens to take advantage of the opportunities being created.

The main focus of the group is to ensure that digital technology industry functions successfully in the European single market. It works to strengthen Europe's intellectual property framework, in order to protect and encourage innovation, by providing advice on complex issues such as the patenting of digital inventions and the promotion of digital rights management. The group develops policy contributions on essential areas such as privacy and data protection, and network and information security.

- **Technical and Regulatory:** The Technical and Regulatory Policy Group (TRPG) aims to identify and address the barriers to technical harmonisation and regulatory obstacles hindering the development of the European digital technology industry. The policy group provides technical expertise for policy-makers to ease the harmonised introduction of evolving and emerging technologies. TRPG experts also participate in strategic market implementation.

The policy group supports increased and more effective public funding for technology research and development (R&D). Spending on R&D is essential for the long term health of Europe's economy because it underpins the innovation that drives productivity improvement and growth. It is not just about funding but also the conditions for R&D; thus EICTA believes it is vital to promote the flow of knowledge between science and industry.

The TRPG is supported by five clusters that group all active issues into a number of topical issues plus the Interoperability task force. The five clusters are:

- Broadcast
  - R&D
  - Spectrum
  - Standards and Conformity.
- **Trade Policy:** The growth of digital technology does not stop at the EU's borders. The Trade Policy Group's (TPG) goal is to secure a level playing field in the EU and worldwide for the European digital technology industry and to improve the framework conditions for global trade in its products.

TPG advances access to third country markets for European digital technologies. EICTA believes competitiveness should be taken into account systematically when negotiating trade and investment issues with third countries to help European companies take part in the ever more competitive world markets.

The group promotes the reduction and elimination of both tariff and non-tariff barriers to trade. TPG also supports the expansion of the WTO's rules-based multilateral trade and investment system. Finally, TPG encourages the simplification in EU customs policy including customs clearance into the EU.

- **Environment Policy:** The digital technology industry is committed to advancing the complementary themes of economic growth, environmental health and social development, which benefit all sectors of society. These objectives should be met whilst taking into account, the context of profitable business enterprise, which allows for innovation in management systems, product design and manufacture. The Environmental Policy Group (EPG) works to ensure that the digital technology industry respects environmental legislation, while allowing the sector to prosper.

EPG promotes the role of the industry in its own sustainable growth. In order to be sustainable the ICT industry must reduce its environmental impact via more efficient resource use and development of environmentally friendly products.

The policy group advocates voluntary industry measures without undue financial burden to enable flexibility and facilitate the sector's competitiveness.

### 3.2.6 ERTICO (Intelligent Transport Systems and Services – Europe)

ERTICO – ITS Europe is a multi-sector, public/private partnership pursuing the development and deployment of Intelligent Transport Systems and Services (ITS). We exist to promote a single successful pan-European ITS market and to ensure that European interests are fully represented throughout the world.

Following the vision of several leading members of European industry, Ministries of Transport and the European Commission, ERTICO was created in 1991 as a cooperative company with equal shareholding Partners. The road to ITS success has not always been easy, with the necessary technologies originally reserved for military purposes or shrouded in confidentiality, but through the hard work of ERTICO and its Partners, ITS is rapidly becoming a part of everyone's daily life.

ERTICO's mission is to promote and support the efficient research, development and implementation of Intelligent Transport Systems and Services in Europe, contributing to better sustainable mobility, environmental and societal aspects and user satisfaction, with acceptable economic returns for its Partners.

All ERTICO activities are carried out by its dedicated, multinational Brussels-based team of staff and experts.

### 3.2.7 Internet Society European Chapters Coordinating Council

The Coordinating Council serves as a forum in which its Chapter Members can meet:

- to discuss areas of importance to its member Chapters and to share information and experiences;
- to develop joint projects and areas of collaboration in support of the Internet Society's purpose;
- to develop and plan activities, projects, actions, and positions for such areas and opportunities.

### 3.2.8 Liberty Alliance Project

The Liberty Alliance Project is an alliance of more than 150 companies, non-profit and government organizations from around the globe. The consortium is committed to developing an open standard for federated network identity that supports all current and emerging network devices.

Federated identity offers businesses, governments, employees and consumers a more convenient and secure way to control identity information in today's digital economy, and is a key component

in driving the use of e-commerce, personalized data services, as well as web-based services. Membership is open to all commercial and non-commercial organizations. Principal topics include:

- **Technology:** The Technology Expert Group is in charge of creating the Liberty Specifications and driving the development of sample implementation and interoperability tests.
- **Public Policy:** The public Policy Expert Group drives dialogue with government and non-government groups concerned with the many issues pertaining to identity and data management and ensures that the Liberty specifications enable compliance with pertinent laws and regulations.
- **Business & Marketing:** The Business & Marketing Expert Group is tasked with identifying market requirements and driving adoption of the liberty specifications. It is also the central point for all the Alliance's communications and drives the creation of Liberty's Business Guidelines.
- **Conformance:** The Conformance Expert Group defines and manages the process for validating vendor interoperability and manages the overall conformance testing program
- **Services:** The services Group defines and manages the process and development for creation of new identity service specifications

### 3.2.9 Radicchio

Launched in 1999 as a non-profit industry organisation, Radicchio seeks to unleash the tremendous potential of the market for secure wireless data services, such as mobile e-commerce and mobile e-government. Guided by a cross industry board of directors including Certicom, EDS, Ericsson, Gemplus, MTN, Sonera Smarttrust and Vodafone, Radicchio is the leading industry voice for trusted networks in the mobile world.

As a cross-industry organisation, Radicchio has a proven track record of fusing and harmonising different technical solutions. Its involvement in the standards bodies like the ICTSB, the GSM Association and the Liberty Alliance project provide a significant boost to its efforts to encourage cross-border mobile commerce in Europe and globally.

Radicchio is currently developing a common framework for worldwide, mobile identity services, known as Trusted Transaction Roaming (t<sup>2</sup>r). The t<sup>2</sup>r scheme will enable mobile operators, retailers and financial institutions to confirm the identity of millions of mobile phone users across multiple networks and conclude remote transactions with maximum security and reassurance - from online shopping to mobile telephone orders. Radicchio is strongly committed to driving the technical and legal framework for trusted transaction roaming.

### 3.2.10 TM Forum

TeleManagement Forum (formerly known as the Network Management Forum) is a global consortium of service providers and suppliers providing leadership to the telecom industry on the most effective ways to improve the management of public networks and services. Through its SMART TMN (Telecommunications Management Network) initiative, the Forum members develop pragmatic, market-based solutions for integrating operational support systems and automating the key process flows necessary for success in today's competitive global market. The SMART TMN program includes four key components:

- The Telecom Operations Map illustrates primary and secondary process flows in Fulfilment, Assurance, and Billing, providing neutral reference point for providers and suppliers automating end-to-end information flows;
- The Central Information Facility allows quick access to protocol-neutral and protocol-specific object models and data definitions;
- The Technology Map identifies the technologies best suited to support various systems and application components to achieve "plug and play" in a distributed environment across the TMN layers;

## D18 – COPRAS reverse mapping report

- The Catalyst Projects are driven by member companies to validate conclusions reached in the Telecom Operations Map and Technology Map and to speed industry agreement and the introduction of true "plug and play" products to market.

TeleManagement World provides members an important business forum where evolving market needs are evaluated, industry-wide agreements are reached, and business deals are made. Principal topics include:

- **NGOSS:** NGOSS defines for Service Providers and their suppliers a comprehensive, integrated framework for developing, procuring and deploying operational and business support systems and software. NGOSS is provided as a set of documents that make up a toolkit of industry-agreed specifications and guidelines that cover key business and technical areas, and a defined methodology for use of the tools. NGOSS uses a "Lifecycle" approach to development of management systems, based on clear definition of business processes, specification and architecting software and systems to automate those processes, and compliance of those systems against NGOSS test criteria.
- **eTOM:** The enhanced Telecom Operations Map® is the most widely used and accepted standard for business process in the telecom industry. The eTOM describes the full scope of business processes required by a service provider and defines the key elements and how they interact creating a guidebook that is fast becoming the common business language of the telecom industry.
- **NGOSS Shared Information/Data Model:** The NGOSS Shared Information/Data (SID) model provides the industry with a common vocabulary and set of information/data definitions and relationships used in the definition of NGOSS architectures.
- **NGOSS Architecture:** NGOSS Architecture focuses on several items, such as the creation of technology (i.e. platform) neutral models in advance of any technology specific work, the development of business, system and information/data views in collaboration with the eTOM, SID and Catalyst projects, and the specification of framework services. NGOSS Architecture guides and manages collaborative activities (i.e. with SID) leading to the development of formal UML models of such services.
- **NGOSS Lifecycle:** The NGOSS Lifecycle project is identifying and developing an NGOSS lifecycle process/architecture/ methodology that provides a framework for the definition, design and development of an NGOSS-based solution using the NGOSS elements (eTOM, SID, Architecture, Compliance). In addition, this project is addressing integration of NGOSS lifecycle process with user processes for management of their business and technology life-cycles.
- **NGOSS Compliance:** The purpose of the NGOSS Compliance Steering Program is to provide the telecommunications industry with a comprehensive set of testable criteria that constitute an OSS solution or OSS product that is compliant with the NGOSS initiative. In addition, the Compliance program will identify a business model defining the levels of NGOSS compliance and how the levels map to the specific test criteria.
- **Services Over IP Project:** The objective is to:
  - define and to prioritize the type of Services need to be worked;
  - develop reference scenarios including the identification of access equipment such as SIP devices, subscriber/access media gateways, transit media gateways and media gateway controllers;
  - resource management interfaces and SLA requirements definition;
  - use case development for provisioning flow-thru in a multi-vendor environment.
- **Revenue Assurance:** The TMF board has directed that a number of new initiatives be created to highlight the possible areas of standardization in the Billing and Charging aspects of OSS/BSS. To this end three teams have been set up to examine some of the opportunities in standardization surrounding revenue assurance, content and data charging and IP/IN.IT convergence.

- **Content and Data Charging:** The TMF board has directed that a number of new initiatives be created to highlight the possible areas of standardization and process development in the Billing and aspects of OSS/BSS. To this end this team has been set up to examine some of the opportunities in standardization surrounding Charging Architectures, Methods and Processes for Data and Content Services.
- **Human Machine Interface:** The Human Machine Interface (HMI) project objective is to improve the efficiency and effectiveness of the interaction between management systems and the people who operate them. The HMI project is creating solutions to standardize this interface, enabling common behaviour in applications from multiple software vendors.
- **IP Network Management:** The objective for the IP Network Management project is to create solutions for the integrated management of multi-vendor IP networks. Solutions will enable complete flow-through of IP network services from business management applications to service management to network management to the network itself.
- **MTNM:** Service provider networks are nearly always supplied by multiple vendors and consist of multiple technologies. Managing this disparate environment presents a large integration challenge for centralized management of the network. The MTNM model provides a single, common solution for managing multi-technology networks (including SONET, SDH, DWDM, ATM, Ethernet and others) and new technologies and network capabilities emerging from ITU SG15 and OIF, including the Control Plane and Ethernet.

The team is also working the creation of the supporting OS to OS interface, which will be provide an XML solution set to support inventory management and alarm management based on the current MTNM object model.

- **Service Framework:** The Service Framework looks mainly at the service lifecycle processes, as defined in the eTOM. Networks and services are evolving; new technologies are introduced more rapidly than existing ones are retired leading to bigger and more complex networks and services. At the same time there is a greater need for automation and optimization of business processes.

Also, the operator focus is moving from managing the network technologies to managing the end-user service experience, which demands different management solutions. The Service Framework project is identifying solutions to these new challenges and which also reduce the operating costs for the service provider.

- **Service Level Agreement Management:** The Service Level Agreement Management project addresses SLA management with respect to the customer to service provider interface.

### 3.2.11 OMG

The Object Management Group (OMG) produces and maintains computer industry specifications for “interoperable enterprise applications” or distributed computing. The OMG Task Forces standardise Domain Facilities in industries such as healthcare, manufacturing, telecommunications, and others.

The central topic is the multi-platform Model Driven Architecture (MDA), based on the modelling specifications the MOF, the UML, XMI, and CWM. OMG's own middleware platform is CORBA, which includes the Interface Definition Language OMG IDL, and protocol IIOP. The Object Management Architecture (OMA) defines standard services that are intended to carry over into MDA work shortly. Principal topics include:

- **MDA - The Model Driven Architecture:** Unifying the Modelling and Middleware spaces, OMG's MDA supports applications over their entire lifecycle from Analysis and Design, through implementation and deployment, to maintenance and evolution. Based on UML models which remain stable as the technological landscape changes around them, MDA-based development is claimed to maximise software return on investment as it integrates applications for distributed computing across an enterprise, and between one enterprise with another. Members adopted it as the basis for OMG specifications in September 2001.

- **UML - Unified Modelling Language:** UML is designed to standardise the representation of object oriented analysis and design. As a graphical language, its dozen diagram types include Use Case and Activity diagrams for requirements gathering, Class and Object diagrams for design, and Package and Subsystem diagrams for deployment. UML lets architects and analysts visualize, specify, construct, and document applications in a standard way.
- **MOF - The MetaObject Facility:** MOF standardizes a meta-model for object oriented analysis and design, and a repository. (The CWM standardizes a meta-model for data modeling; look two paragraphs down.) Because they are based on the MOF meta-model, UML models can be freely passed from tool to tool using XMI - without the commonality of definition provided by the MOF, this would not be practical.
- **XMI - XML Metadata Interchange:** XMI allows MOF-compliant meta-models (and therefore models, since a model is just a special case of a meta-model) to be exchanged as XML datasets. Both application models (in UML) and data models (in CWM; see below) may be exchanged using XMI. In addition to allowing model exchange, XMI serves as a mapping from UML and CWM to XML.
- **CWM - The Common Warehouse Meta-model:** CWM standardizes a basis for data modelling commonality within an enterprise, across databases and data stores. Building on a foundation meta-model, it adds meta-models for relational, record, and multidimensional data; transformations, OLAP, and data mining; and warehouse functions including process and operation. CWM maps to existing schemas, supporting automated schema generation and database loading. This makes it the basis for data mining and OLAP across the enterprise.
- **CORBA - the Common Object Request Broker Architecture:** CORBA is OMG's showcase specification for application interoperability independent of platform, operating system, programming language - even of network and protocol. **CORBA** includes a number of specifications that you may have heard about separately: **OMG Interface Definition Language (OMG IDL)**, the network protocols **GIOP** and **IIOp**, an infrastructure for server-side scalability termed the **POA** (for **Portable Object Adapter**), and the **CORBA Component Model (CCM)**.

The CCM integrates Enterprise Java Beans, and a mapping to XML provides the most robust support in the industry for XML document usage and interoperability.

- **OMA - The Object Management Architecture:** OMA is a set of standard interfaces for standard objects that support CORBA applications. It includes the base-level **CORBA Services**, the **CORBA Facilities**, and a large and growing set of **Domain Specifications**.

### 3.2.12 OASIS

OASIS was founded in 1993 under the name SGML Open as a consortium of vendors and users devoted to developing guidelines for interoperability among products that support the Standard Generalized Markup Language (SGML). OASIS changed its name in 1998 to reflect an expanded scope of technical work, including the Extensible Markup Language (XML) and other related standards.

The Consortium hosts two of the most widely respected information portals on XML and Web services standards, Cover Pages and XML.org. OASIS Member Sections include CGM Open, DCML, LegalXML, PKI, and UDDI. Principal specifications from OASIS include the following:

- Application Vulnerability Description Language (AVDL) v1.0
- Common Alerting Protocol v1.0
- Darwin Information Typing Architecture (DITA) v1.0
- Directory Services Markup Language (DSML) v2.0
- DocBook v4.1

## D18 – COPRAS reverse mapping report

- ebXML Collaborative Partner Profile Agreement (CPPA) v2
- ebXML Message Service Specification v2.0
- ebXML Registry Information Model (RIM)
- ebXML Registry Services Specification (RS)
- eXtensible Access Control Markup Language TC v2.0 (XACML)
- OpenDocument Format for Office Applications (OpenDocument) v1.0
- Security Assertion Markup Language (SAML)
- Service Provisioning Markup Language (SPML) v1.0
- Universal Description, Discovery and Integration (UDDI)
- Universal Business Language (UBL) v1.0
- Universal Business Language Naming & Design Rules v1.0 (UBL NDR)
- WS-Reliability (WS-R) v1.1
- Web Services for Remote Portlets (WSRP) v1.0
- Web Services Security v1.0 (WS-Security 2004)
- Web Services Security SAML Token Profile v 1.0 and REL Token Profile v1.0
- WSDM Management Using Web Services v1.0
- XML Common Biometric Format (XCBF) v1.1

Principal topics addressed include:

- OASIS DCML Framework TC: DCML refers to an XML-based data model and format for exchanging information about the contents of data centres and other IT resources and information used in managing those resources.
- LegalXML: Using XML to allow public access to justice through private- and government-sponsored dispute resolution systems
- PKI: It is a standards-based, interoperable public-key infrastructure (PKI) as a foundation for secure transactions in e-business applications.
- UDDI: It is a standard interoperable platform that enables companies and applications to quickly, easily, and dynamically find and use Web services over the Internet. UDDI also allows operational registries to be maintained for different purposes in different contexts.
- SOA: The OASIS Service Oriented Architecture TC is chartered to develop a Reference Model for Service Oriented Architecture. This is primarily to address SOA being used as a term in an increasing number of contexts and specific technology implementations. Sometimes, the term is used with differing - or worse, conflicting - understandings of implicit terminology and components. This Reference Model is being developed to encourage the continued growth of different and specialized SOA implementations whilst preserving a common layer of understanding about what SOA is.

### 3.2.13 RosettaNET standard topics

RosettaNet is dedicated to creating and implementing open e-business process standards to improve the effectiveness of trading networks. RosettaNet dictionaries provide the words, the RosettaNet Implementation Framework (RNIF) acts as the grammar and RosettaNet Partner Interface Processes® (PIPs®) form the dialog.

RosettaNet uses servers to exchange information over the Internet. HTML/XML function as the alphabet, and electronic commerce applications serve as the instrument by which e-business processes are transmitted.

## D18 – COPRAS reverse mapping report

RosettaNet is actively expanding into adjacent business sectors, such as logistics, aerospace and consumer electronics, enabling interoperability across multiple industries. RosettaNet is a subsidiary of GS1 US, formerly the Uniform Code Council, Inc. (UCC). Principal topics include:

- Foundational Programs support development of RosettaNet’s architectural “building blocks”, including enhanced production of standards specifications, methodology, convergence activities and other initiatives designed to ensure robust implementations. RosettaNet’s active Foundational Programs include:
  - Dictionary Architecture
  - Domain Model
  - Multiple Messaging Services
  - PIP Specification Format
  - RosettaNet Business Dictionary
  - RosettaNet Technical Dictionary
  - RosettaNet Methodology
  - RosettaNet Software Compliance

RosettaNet Partner Interface Processes® (PIPs®) are the vehicle for the definition of business processes between trading partners. PIPs are addressed within seven Clusters, which represent the core business processes of a trading network:

- Cluster 1: Partner Product and Service Review
- Cluster 2: Product Information
- Cluster 3: Order Management
- Cluster 4: Inventory Management
- Cluster 5: Marketing Information Management
- Cluster 6: Service and Support
- Cluster 7: Manufacturing

RosettaNet dictionaries provide a common set of properties for PIPs®. The RosettaNet Business Dictionary designates the properties used in basic business activities. RosettaNet Technical Dictionaries provide properties for defining products.

- **RosettaNet Implementation Framework:** The RosettaNet Implementation Framework (RNIF) Core Specification is the packaging, routing, and transport of all PIP® messages and business signals.
- **Product & Partner Codes:** Product and partner codes in RosettaNet standards expedite the alignment of business processes between trading partners.
- **Trading Partner Implementation Requirements:** Trading Partner Implementation Requirements enable trading partners to constrain schema-based PIP; and view, respond to and create RosettaNet PIPs without requiring backend integration.

### 3.2.14 W3C standard topics

The World Wide Web Consortium (W3C) is an international consortium where Member organisations, a full-time staff, and the public work together to develop Web standards. Its mission is to lead the World Wide Web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web.

At its heart W3C has developed the W3C Technology Stack model. This consists of three layers – application layer, web architecture and internet architecture. The W3C addresses the middle layer. In turn, the central Web architecture is depicted as a series of layers, each building on the other. The foundation of URIs, HTTP, XML, and RDF supports pursuits in five areas. Themes of accessibility, internationalization, device independence, and quality assurance pervade W3C technologies (see Figure 1)



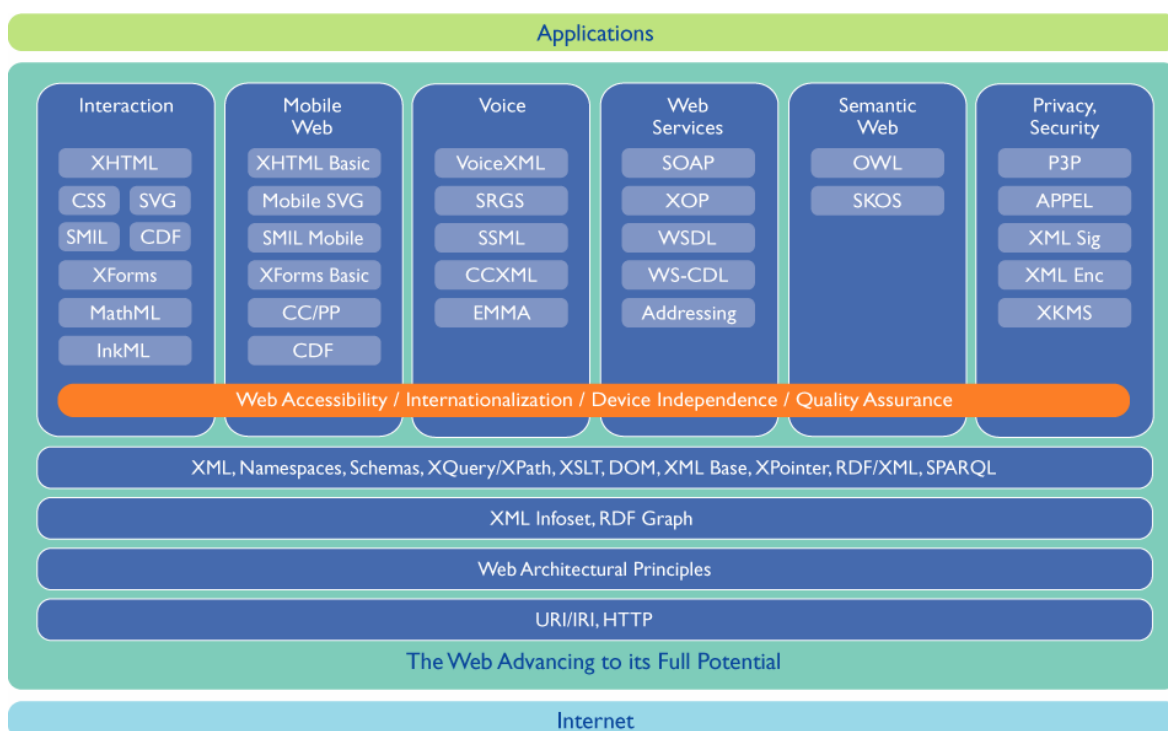


Fig.1 W3C Technology stack model

The principle topics being addressed by W3C fall into the following main categories:

#### Architecture:

- **DOM (Document Object Model):** W3C's Document Object Model (DOM) is a standard Application Programming Interface (API) to the structure of documents. The DOM aims to make it easy for programmers to access components and to delete, add, or edit their content, attributes and style. In essence, the DOM makes it possible for programmers to write applications which work properly on all browsers and servers and on all platforms. While programmers may need to use different programming languages, they do not need to change their programming model.

W3C's DOM thus offers programmers a platform- and language-neutral program interface which will make programming reliably across platforms with languages such as Java and ECMAScript a reality.

- **XML (Extensible Markup Language):** The Extensible Markup Language is a simple, flexible text format derived from SGML (ISO 8879). The W3C created, developed and continues to maintain the XML specification. The W3C is also the primary centre for developing other cross-industry specifications that are based on XML. Some of these are being done within the XML Activity, such as XML Query and XML Schema, and some are being done in other W3C Activities, such as Web Services, SVG and XHTML. The XML Activity tries to keep a balance between stability and backwards compatibility on the one hand, and improvements that help to encourage interoperability and to bring new communities into the world of XML.
- **XSL (Extensible Stylesheet Language), XSLT and XPath 2.0:** XSL (extensible stylesheet language) is a style sheet and transformation language for XML and other structured markup languages. It defines a practical style and transformation language capable of supporting the transformation and presentation of, and interaction with, structured information (e.g., XML documents) for use on servers and clients. The language is designed to build transformations in support of browsing, printing, interactive editing, and transcoding of one XML vocabulary into another XML vocabulary. To enhance accessibility, XSL is able to present information both visually and non-visually. XSL is not intended to replace CSS, but will provide functionality beyond that defined by CSS, for example, element re-ordering. XSL is constituted of three main components, a transformation language known as XSLT, an expression lan-

guage for addressing parts of XML documents, known as XPath, and a vocabulary of formatting objects with their associated formatting properties, known as XSL-FO.

- **Internationalization (I18n):** The goal of the Internationalization (I18n) Activity is to ensure that W3C's formats and protocols are open to all of the world's languages, writing systems, character codes and local conventions. I18n reviews W3C publications, coordinates with the Unicode Technical Committee, the IETF, ISO committees, and the localization industry. I18n increases awareness of internationalization issues via conferences, workshops and articles. I18n produces specifications such as the Character Model for the World Wide Web, IRIs, and Ruby. I18n provided input on international typography in many Cascading Style Sheets (CSS) Level 3 modules. I18n also examines usage scenarios and requirements for the internationalization of Web services, and internationalization and localization requirements for schemas.

The Internationalization Core Working Group (I18N Core WG) concentrates its activities on technical issues related to internationalization and universal access across the globe. It develops recommendations and notes related to internationalization and encompassing work related to international, linguistic, cultural, and writing system variations affecting W3C technologies.

The WG also reviews W3C technologies for internationalization issues as these technologies develop. This encompasses a broad array of cultural, linguistic, technical and accessibility concerns. Review work may also include standards created by external standards bodies and organizations related to internationalization, if it is thought to be relevant to W3C technology. The Working Group maintains liaison relationships with these groups to ensure coordinated, consistent development of these standards.

- **URI:** URI Interest Group encompasses and review of URI/IRI issues between W3C and the IETF, including monitoring maintenance of the IANA URI scheme registry, updating and maintaining materials and documentation on the W3C site relevant to URIs, and promoting development of supplementary guidelines bringing architectural issues and recommendations to the attention of the TAG acting as a resource for information and clarifications involving URI issues to the W3C Membership working with other organizations on URI/IRI issues where appropriate maintaining testing materials.
- **Web services:** Web services provide a standard means of interoperating between different software applications, running on a variety of platforms and/or frameworks. Web services are characterized by their great interoperability and extensibility thanks to the use of XML, and they can then be combined in a loosely coupled way in order to achieve complex operations. Programs providing simple services can interact with each other in order to deliver sophisticated added-value services. W3C is designing the infrastructure, and defining the architecture and the core technologies for Web services, continuing its foundation work after the release of the SOAP 1.2 XML-based messaging framework as a W3C Recommendation in June 2003.
- **Semantic Web services:** The goal of the Semantic Web initiative is to create a universal medium for the exchange of data where data can be shared and processed by automated tools as well as by people. For the Web to scale, tomorrow's programs must be able to share and process data even when these programs have been designed totally independently. The Semantic Web will smoothly interconnect personal information management, enterprise application integration, and the global sharing of commercial, scientific and cultural data. Facilities to put machine-understandable data on the Web are quickly becoming a high priority for organizations, individuals and communities. The Semantic Web Activity develops specifications for technologies that are ready for large scale deployment, and identifies infrastructure components through open source advanced development. The principal technologies of the Semantic Web fit into a set of layered specifications. The current components are the Resource Description Framework (RDF) Core Model, the RDF Schema language and the Web Ontology language (OWL). Building on these core components is a standardized query language, SPARQL (pronounced "sparkle"), enabling the 'joining' of decentralized collections

of RDF data. These languages all build on the foundation of URIs, XML, and XML namespaces.

- **XML Protocol:** A broad range of applications will eventually be interconnected through the Web. The initial focus of this Working Group is to create simple protocols that can be ubiquitously deployed and easily programmed through scripting languages, XML tools, interactive Web development tools, etc. The goal is a layered system which will directly meet the needs of applications with simple interfaces (e.g. `getStockQuote`, `validateCreditCard`), and which can be incrementally extended to provide the security, scalability, and robustness required for more complex application interfaces.

### Interaction:

- **HTML:** HTML is the family name for the group of languages that form the *lingua franca* of the World Wide Web. The HTML Working Group is chartered to evolve HTML into an XML-based markup, modularize it to make it easier to combine it with other markup languages, and correct the problems known still to exist, in areas such as internationalization, accessibility, device independence and forms processing.
- **XForms:** XForms is a markup language that addresses the modern needs of electronic forms. It is based on XML and can deliver the collected values as an XML document. It addresses questions of authorability, usability, accessibility, device independence, internationalization, integration into different host languages, and reducing the need for scripting.
- **CSS (Cascading Style Sheets):** Cascading Style Sheets offer extensive control over the presentation of Web pages. The Cascading Style Sheets (CSS) language is widely implemented. CSS is playing an increasingly important role in styling not just HTML, but also many kinds of XML documents: XHTML, SVG (Scalable Vector Graphics) and SMIL (the Synchronized Multimedia Integration Language), to name a few. It is also an important means of adapting pages to different devices, such as mobile phones or printers.
- **SVG (Scalable Vector Graphics):** Scalable Vector Graphics (SVG) brings the powerful combination of interactive, animated two-dimensional vector graphics and Extensible Markup Language (XML). Earlier work was concerned with Portable Network Graphics (PNG) and with WebCGM.
- **Compound Document Formats:** "Compound document" is the W3C term for a document that combines multiple formats, such as XHTML, SVG, SMIL and XForms. The W3C Compound Document Formats (CDF) Working Group will specify the behaviour of some format combinations, addressing the needs for an extensible and interoperable Web. Extensibility is an important aspect of the Web, yet it isn't always practical to extend specific formats beyond their requirements. An alternative extensibility path is to combine formats within a single document, with each format containing the data it describes best. The scope of the Compound Document Formats Working Group covers the technologies related to combining existing documents formats, either by reference or by inclusion.
- **(MathML) Mathematical Markup Language:** Mathematical Markup Language (MathML) is a highly-structured, information-rich, XML encoding for mathematical expressions, and is chartered to maintain it. MathML facilitates the authoring and presentation of mathematical expressions in print and on the screen, and forms the basis for machine to machine communication of mathematics on the Web. Designed as an XML application, MathML provides two sets of tags, one for the presentation of mathematics and the other associated with the meaning behind equations. MathML is not designed for people to enter by hand; specialized tools provide the means for typing in and editing mathematical expressions.
- **The W3C Device Independence:** This activity is working to ensure seamless Web access with all kinds of devices, and worldwide standards for the benefit of Web users and content providers alike. The World Wide Web is the universe of network-accessible information. A threat we face is that only parts of the Web will be accessible from cellular phones, TV, digital cameras, and in-car computers. W3C is dedicated to ensuring that the Web universe is not fragmented. In keeping with W3C's goal of universal access, and the fundamental design

principles that govern W3C technological development, interoperable languages and protocols and single-authored content should prevail.

- **Multimodal Interaction:** This activity seeks to extend the Web to allow users to dynamically select the most appropriate mode of interaction for their current needs, including any disabilities, whilst enabling developers to provide an effective user interface for whichever modes the user selects. Multimodal interaction offers usability benefits over uni-modal interaction when hands-free operation is needed, for mobile devices with limited keypads, and for controlling other devices when a traditional desktop computer is unavailable. Users can provide input via speech, handwriting, and keystrokes, with output presented via displays, pre-recorded and synthetic speech, audio, and tactile mechanisms such as mobile phone vibrators and Braille strips. Advances in embedded and network-based speech processing are creating opportunities for integrated multimodal Web browsers and for solutions that separate the handling of visual and aural modalities, for example, by coupling a local XHTML user agent with a remote VoiceXML user agent.
- **Voice Browser:**
  - *VoiceXML 2.x:* Maintenance of VoiceXML 2.0, and continued work on incremental releases including VoiceXML 2.1 that provide backwards compatibility with 2.0.
  - *VoiceXML 3.0:* VoiceXML 3.0 is the next major release of VoiceXML. Its purpose is to provide powerful dialog capabilities that can be used to build advanced speech applications, and to provide these capabilities in a form that can be easily and cleanly integrated with other W3C languages. It will provide enhancements to existing dialog and media control, as well as major new features (e.g. modularization, a cleaner separation between data/flow/dialog, and asynchronous external eventing) to facilitate interoperation with external applications and media components.
  - *Speech synthesis and aural prompts:* Work is expected on the maintenance of SSML 1.0 and on incremental releases including the say-as mechanism, and features for more expressive speech. Continued collaboration is expected with the W3C Cascading Style Sheets Activity on CSS support for speech synthesis.
  - *Speech recognition grammars:* This covers context free grammars and statistical models of speech, together with DTMF input. Work is expected on the maintenance of SRGS 1.0 and incremental releases, as well as a resumption of work on N-Gram models.
  - *Pronunciation lexicons:* These provide the basis for describing pronunciation information for use in speech recognition and synthesis, for use in tuning applications, e.g. for proper names that have irregular pronunciations.
  - *Semantic interpretation for speech recognition:* This describes annotations to grammar rules for extracting the semantic results from recognition, either as XML or as a value that can be held in an ECMAScript variable. The target for the XML output is EMMA (Extensible Multimodal Annotation Markup Language) which is being developed in the W3C Multimodal Interaction Activity.
  - *Telephony call control for voice browsers:* Driving CCXML 1.0 through to Recommendation status, followed by maintenance and work on incremental releases.
- **Mobile Web:** The main objective of the Mobile Web Best Practice (MWBP) Working Group is to enable the reach of the Web to be easily extended onto mobile devices by providing guidelines, checklists and best practice statements which are easy to comprehend and implement. These, when implemented by a Web site provider will enable the content to be perceived by users on mobile devices, particularly small-screen devices such as PDAs, smart phones and touch-screen devices. The intent of the MWBP Working Group is not to force content providers to limit the scope of their content delivery only those mechanisms which are available on mobile devices. Rather, the guidelines produced by the MWBP Working Group are intended to enable content to be seamlessly adapted across a range of device form factors. There is no intent for the MWBP Working Group to develop new technology, such as markup languages. However if, during its work, the need for new technologies is identi-

fied, the group may raise requirements with other W3C groups or groups within other standards organisations.

- **SYMM:** The Synchronized Multimedia Activity designed the Synchronized Multimedia Integration Language (SMIL, pronounced "smile") for choreographing multimedia presentations where audio, video, text and graphics are combined in real time. SMIL is a W3C Recommendation that enables authors to specify and control the precise time a sentence is spoken and make it coincide with the display of a given image. The Synchronized Multimedia (SYMM) Working Group completed SMIL 1.0 and SMIL 2.0 and is currently building SMIL 2.1 and a future version. Version 2.1 extends SMIL 2.0 functionalities into new or revised modules, defines new profiles for the mobile industry, and should enable other standards bodies such as 3GPP and OMA to base their MMS-related specifications on a SMIL 2.1 W3C Recommendation. The Timed Text Working Group is designing an XML-based format used for the representation of streamed text synchronized with other timed media. Typical applications are real time subtitling of foreign-language movies, captioning for people lacking audio devices or having hearing impairments, karaoke, scrolling news items, and teleprompter applications.
- **Timed Text:** The scope of the TTWG includes:
  - Development of a new Timed Text format that integrates well with other W3C technologies
  - Maintenance of requirements document for the new format (what it should do and not do)
  - Maintenance of a list of existing formats in this field and how they relate/differ from the new format being developed at W3C
  - Coordination with organizations developing those other formats to get their input on the new format
  - Coordination with other W3C groups (e.g. HTML, SMIL, WAI, SVG, CSS) developing technologies that can be used to implement Timed Text.
- **WAI (Web Accessibility Initiative):** Given the vital role that the Web now plays throughout society, it is essential to ensure that the Web is accessible to people with disabilities. Access to the Web can affect people with visual, hearing, physical, cognitive, and neurological disabilities. The solutions developed for Web accessibility also benefit non-disabled people. The WAI International Program Office helps create a forum where representatives of industry, the disability community, research, and government work together to identify accessibility requirements and develop solutions under W3C Process.
- **Web Content Accessibility:** The purpose is to develop guidelines to make Web content accessible for people with disabilities. In particular, the WCAG WG will publish the Web Content Accessibility Guidelines 2.0 as a W3C Recommendation.
- **Authoring Tool Accessibility Guidelines:** The purpose is to:
  - Support and track implementation of the Authoring Tool Accessibility Guidelines 1.0, including specifying evaluation techniques.
  - Develop a second version of the Authoring Tool Accessibility Guidelines (ATAG 2.0).
  - Revise the W3C Note Techniques for Authoring Tool Accessibility for compatibility with ATAG 2.0.
  - Develop test suites for ATAG 1.0 and ATAG 2.0.
- **Evaluation and Repair Tools:** The mission of the Evaluation and Repair Tools Working Group (ERT WG) is to develop techniques and resources to facilitate the evaluation and repair of Web sites with regard to their conformance to the Web Content Accessibility Guidelines 2.0, and to facilitate testing across all three WAI guidelines also including the Authoring Tool Accessibility Guidelines and User Agent Accessibility Guidelines.
- **Protocols and Formats:** The mission of the (Member Confidential) Protocols and Formats Working Group (Member Confidential PFWG) (Public PFWG) is to increase the support for

accessibility in Web specifications. This mission flows from the W3C mission of promoting universal access and interoperability across the Web.

- **User Agent Accessibility:** The mission of the User Agent Accessibility Guidelines Working Group (UAWG) is to produce guidelines for the development of accessible user agents: software that retrieves and renders Web content, including text, graphics, sounds, video, images, etc. In particular, the UAWG seeks to support the implementation of the User Agent Accessibility Guidelines 1.0, and to collect requirements for a subsequent version of User Agent Accessibility Guidelines.

### Technology & Society:

- **Semantic Web:** The goal of the Semantic Web initiative is to create a universal medium for the exchange of data where data can be shared and processed by automated tools as well as by people. For the Web to scale, tomorrow's programs must be able to share and process data even when these programs have been designed totally independently. The Semantic Web will smoothly interconnect personal information management, enterprise application integration, and the global sharing of commercial, scientific and cultural data. Facilities to put machine-understandable data on the Web are quickly becoming a high priority for organizations, individuals and communities. The Semantic Web Activity develops specifications for technologies that are ready for large scale deployment, and identifies infrastructure components through open source advanced development. The principal technologies of the Semantic Web fit into a set of layered specifications. The current components are the Resource Description Framework (RDF) Core Model, the RDF Schema language and the Web Ontology language (OWL). Building on these core components is a standardized query language, SPARQL (pronounced "sparkle"), enabling the 'joining' of decentralized collections of RDF data. These languages all build on the foundation of URIs, XML, and XML namespaces.
- **RFC Data Access:** The principal task of the RDF Data Access Working Group is to gather requirements and to define an HTTP and/or SOAP-based protocol for selecting instances of sub-graphs from an RDF graph. The group's attention is drawn to the RDF Net API submission. This will involve a language for the query and the use of RDF in some serialization for the returned results. The query language may have aspects of a path language similar to XPath (used for XML in XSLT and XQuery) and various RDF experimental path syntaxes.
- **P3P:** The Platform for Privacy Preferences (P3P) 1.0 was issued in April 2002 after five years of intense development. P3P allows people to define and publish their Web site privacy policies, and helps automate how those policies are read. P3P also gives users control over the use of their personal information on Web sites they visit, promoting trust and confidence in the Web. The impact of the transparency established by P3P is already visible as people start to think about privacy while planning their workflow and the usage of cookies. The Privacy Activity continues to improve existing work and expand the scope of P3P. The P3P Specification Working Group took up the short-term improvements suggested by the W3C Workshop on the Future of P3P. Most prominently, new guidelines for user agents and interfaces were added to the P3P version 1.1 work in progress.
- **XML Key Management:** The mission of this working group is to develop a specification of an XML application/protocol that allows a simple client to obtain key information (values, certificates, management or trust data) from a web service. This specification will be based on the XML Key Management Specification (XKMS) which is comprised of two parts -- the XML Key Information Service Specification (X-KISS) and the XML Key Registration Service Specification (X-KRSS). X-KISS defines a protocol for a Trust service that resolves public key information contained in XML Signature elements. The X-KISS protocol allows a client of such a service to delegate part or all of the tasks required to process <ds:KeyInfo> elements. A key objective of the protocol design is to minimize the complexity of application implementations by allowing them to become clients and thereby to be shielded from the complexity and syntax of the underlying PKI used to establish trust relationships. The underlying PKI may be based upon a different specification such as X.509/PKIX, SPKI or PGP. X-KRSS defines a protocol for a web service that accepts registration of public key informa-

tion. Once registered, the public key may be used in conjunction with other web services including X-KISS.

### 3.2.15 Open Group standard topics

The Open Group works towards enabling access to integrated information within and between enterprises based on open standards and global interoperability.

The mission of The Open Group is to drive the creation of Boundaryless Information Flow™ through work with customers to capture, understand and address current and emerging requirements, establish policies, and share best practices. It also works with suppliers, consortia and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies.

It offers a comprehensive set of services to enhance the operational efficiency of consortia to manage a development program providing a certification service and encouraging procurement of certified products. Principal topics include:

- **Architecture topics**

The Architecture Forum has developed and is evolving a comprehensive enterprise architecture framework called TOGAF to enable businesses to achieve the right balance between IT efficiency and business innovation, while also taking into consideration the constantly changing needs of the business environment. A certification program supports the framework.

TOGAF consists of three major components – Architecture Development Method (ADM), Enterprise Continuum and Resource Base. The ADM is being further developed and includes:

- **The Enterprise, Culture, and Stakeholders**
- **Architecture Creation**
- **Architecture-based Transformation**
- **Architecture Realization**
- **Architecture Management and Governance**
- **Synergies between TOGAF ADM and OMG's MDA and DSDM frameworks**

- **Directory Interoperability topics**

The Directory Interoperability Forum (DIF) leads The Open Group's work on Identity Management, and enables and promotes open and interoperable directories based on open standards. There are two broad areas of focus for the group:

**Identity Management**  
**Secure Directory Services Business Scenario**

- **Enterprise Management topics**

The Enterprise Management Forum works to develop a common manageability infrastructure that can be used by both applications developers and management system vendors to create an open management environment in which complex solutions can be constructed without artificial barriers to their management. The main activity areas are:

- **Application Response Measurement (ARM):** A common method for integrating enterprise applications as manageable entities.
- **Application Quality/Resource Management (AQRM):** Developing an architectural framework, standards profile, and standards for AQRM.
- **OpenPegasus:** Continuing development of an open infrastructure standard that allows the construction of interoperable management environments and programming interface standards.

- **GRID Enterprise**

Topics cover on all aspects of Network Centric services and the Common Operating Environment (COE) certification program. Members of the Forum are primarily interested in advising and providing solutions for US government and defence agencies moving to network centric operations to ensure that industry best practices and state of the art technology can be deployed more easily and quickly.

- **Network Centric Profiles:** Developing initial profiles for the network centric platform and infrastructure.
- **Common Operating Environment (COE) Platform Certification Program:** Defining and evolving certification requirements, while also overseeing the program itself. This program replaces the COE KPC program formerly offered by the Defence Information Systems Agency.

- **Jericho**

The Jericho Forum is an international circle of IT customer and vendor organizations dedicated to the development of open standards to enable secure and boundaryless information flows across organizations. Current work is in the area of:

- **Trust Models:** Work on a new model for establishing appropriate and enforceable levels of trust - different levels to match the level of trust appropriate to the value and risk involved in each electronic transaction. An adequate trust model within the perimeterised environment is essential to realising the objectives of the Jericho Forum.

- **Messaging**

The vision of the Messaging Forum is to maintain and enhance the effectiveness of electronic messaging for inter-personal communication and as a backbone for ecommerce. Topics being addressed are:

- **E-mail Architecture:** Addressing the bigger picture of enterprise communications
- **Security certificates:** Analyzing potential barriers to cross recognition.
- **Spam:** Addressing unsolicited email as a major impediment to the effectiveness of electronic mail
- **Instant Messaging:** Joint effort with E E M A to address Instant Messaging.

- **Platform**

The Platform Forum standardizes the platform infrastructure on which applications can be built. Focus is on: open standards for operating systems, including UNIX Specification, Version 3, POSIX Real-time and aspects of the Linux Standard Base plus Additional API set for Linux alignment .

- **Real-Time and Embedded Systems**

The Real-time and Embedded Systems Forum defines, coordinates, integrates and prioritizes real-time and embedded systems standards utilizing various existing architectural approaches. The Forum also defines test suites and certification programs for products adhering to these standards to enable the proliferation of conformant real-time and embedded systems. Work areas include:

- **Security:** Examining the intersection of security requirements with real-time and embedded systems to develop reference protection profiles.
- **Safety/Mission Critical Applications:** Working with Commercial-Off-The-Shelf (COTS) component developers and system integrators to remove barriers for the use of COTS in safety-critical systems.
- **Real-time Java:** Developing two Java Specification Requests (JSR) for submittal to the Java Community Process



- **Security**

The Security Forum works to raise industry confidence levels by defining standards and guidelines to counter the whole range of security risks and vulnerabilities. The Forum looks at both the business and technical perspectives in its Manager's and Technical Guides.

- **Active Loss Prevention:** Risk Management - the ALP initiative
- **Access Control:** Identity & Authentication
- **Security Architectures:** Including Mobile Security

- **Universal Data Element Framework (UDEF)**

Aims to establish UDEF as the universally used classification system for data element concepts. It focuses on developing and maintaining the UDEF as an open standard, advocating and promoting it, putting in place a technical infrastructure to support it, implementing a Registry for it, and setting up education programs to train information professionals in its use.

- **UDEF and semantic products:** UDEF currently consists of a relatively small set of core definition and the UDEF Extension work is defining and will operate the process by which new definitions in specialist subject areas can be added.
- **Architecture:** Describing the general semantic architecture of the UDEF-enabled world, and defining the specific architecture for the global registry that will hold the UDEF definitions and make them available to users.

### 3.3 Observers

#### 3.3.1 ANEC

ANEC was set up in 1995 as an international non-profit association under Belgian law. It represents consumer organisations from the European Union Member States and the European Free Trade Association (EFTA) countries. Our General Assembly is composed of one national member per country, nominated jointly by the national consumer organisations in their country. ANEC is funded by the European Commission and EFTA, while national consumer organisations contribute in kind. Its Secretariat is based in Brussels.

ANEC provides technical expertise and advice based on a network of more than 200 consumer representatives across Europe. Our experts contribute directly to the work of more than 60 technical committees, working groups and new deliverables of the European Standards Organisations (ESOs). ANEC has standing Europe-wide working groups on a number of priority areas:

- Child Safety;
- Design for All;
- Domestic Appliances;
- Environment;
- Information Society;
- Services and Traffic Safety.

#### 3.3.2 NORMAPME

NORMAPME is "The European Office of Crafts, Trades and SMEs for Standardisation". The legal form of NORMAPME is an international non-profit association (a.i.s.b.l.). It was created under Belgian law in December 1996 by UEAPME and four other SME organisations (EBC, EMU, IFD, Jeune), with the support of the European Commission following two years of preparatory activities.

NORMAPME has members representing 10 million SMEs in all 28 EEA countries, it is present in all the countries of the enlargement and beyond. It is the unique European organisation focused on small enterprise interests in the European standardisation system.

The ideas behind the creation of NORMAPME were adopted by the 2nd European Conference on Crafts and Small Enterprises that was held in Berlin on September 26 and 27, 1994. The European Commission has supported NORMAPME during the first years of operation. Presently NORMAPME carries out an EC contract offering standardisation services to SMEs.

The mission is to defend the interests of all European SMEs within the standardisation system. This mission is of crucial interest as SMEs represent over 90% of European companies and lack knowledge regarding standards and standardisation. So they need some support to help them in implementing existing standards, as well as in raising their voice in the standardisation process. To sum up, we have to increase awareness amongst SMEs and to stop the cycle of under representation of the interests of SMEs in standardisation.

NORMAPME activity has three main axes: Information, formulation of proposals on standards and new approach directives and promotion of the interests of small companies on standardisation issues. Information is collected on ongoing and planned standardisation. For this purpose, experts recommended by its member SME organisations participate in the work of Technical Committees of the European Standardisation Organisations ESO (CEN, CENELEC, ETSI) and ISO. NORMAPME also collects information on new directives or directives under review. The essential parts of this information is published in simple language using means such as the newsletter, specific circulars, our website and seminars.

Its members, all SMEs and their organisations have the opportunity to formulate proposals for the improvement of standards and directives. These opinions are debated in the expert groups that NORMAPME facilitates in order to draft SME representative positions. Once these positions are finalised NORMAPME promotes them in the ESOs, ISO, the European institutions and through the media by publishing articles and press communications.

## 4. IST project reviews

The analysis involved the surveying of 401 IST projects within the FP6 programme. The following tables provide a top-level review of the relevance of standards body's topics within the projects listed. A mark is indicated against each topic where the project is considered to be working in an area covered by a particular standards body.

The results are presented in a number of tables in this chapter, in sections 4.1 through 4.11. The tables have a column with the project acronym, a column linking to the web site of the project, and a column representing general but non-specific relevance to the activity of the project to the work of the standards body generally. These first three columns are followed by columns relating to the specific topics covered by each standards body. The systematic of the tables is also explained in the example diagram below:

W3C STANDARDS TOPICS		NON SPECIFIC	TOPIC 1	TOPIC 2	TOPIC 3	TOPIC 4	TOPIC 5
PROJECT	Click box below for Project Web Site						
PROJECT 1	<a href="http://www.website/">http://www.website/</a>	■					
PROJECT 2	<a href="http://www.website/">http://www.website/</a>				■		■
PROJECT 3	<a href="http://www.website/">http://www.website/</a>	■				■	

Figure 2: example diagram

Referring to the example diagram above:

1. A single mark in the non-specific column means an unspecific but general relevance to one or more topics covered by the standards body.

## D18 – COPRAS reverse mapping report

2. A mark in the non-specific column together with one or marks in topic columns means both general relevance and specific work with we have judged relevant to one or more topics covered by the standards body although not specifically mentioned within the project.
3. No mark in the non-specific column but one or more marks in the topic columns denotes specified activity in the project relating to one or more topics covered by the standards body.

The analysis is based on the information available from the CORDIS FP6 project summaries as well as on the information gathered from the projects in the WP2:

It was not possible to assess properly the information concerning some of the projects.

- PROMENADE – not considered to be working in the areas of the given standards bodies.
- SIDEMIRROR – possible synergy with Open Group WAP topic.
- ONTOGRID – possible general synergies with OMG and W3C topics.
- QUELE – not considered to be working in the areas of the given standards bodies.
- SNOW – not considered to be working in the areas of the given standards bodies.
- STREAM – not considered to be working in the areas of the given standards bodies.
- TNT – not considered to be working in the areas of the given standards bodies.
- MEDSI – not considered to be working in the areas of the given standards bodies.
- MORE MOORE – not considered to be working in the areas of the given standards bodies.

Mapping of IST FP6 project topics to standards bodies

4.1 Projects relevant to CEN/ISSS topics

Number	Project	Project Web Site	NON SPECIFIC	Bar coding	Automatic control	Health informatics	Road transport & telematics	Geographic information	Com systems for meters	e-learning technologies	Biometrics	Security & e-Authentication	Data privacy	e-Business	Software & interoperability	Web accessibility
1	BioSec	<a href="http://www.biosec.org">http:// www.biosec.org</a>				■					■	■				
2	Digital Passport	<a href="http://www.eudigitalpassport.com/">http://www.eudigitalpassport.com/</a>									■	■	■			
3	DBE	<a href="http://digital-ecosystem.org/">digital-ecosystem.org/</a>												■		
4	SATINE	<a href="http://www.srdc.metu.edu.tr/webpage/projects/satine">www.srdc.metu.edu.tr/webpage/projects/satine</a>												■		
5	EMAYOR	<a href="http://www.emayor.org">http://www.emayor.org</a>												■		
6	GUIDE	<a href="http://www.guide-project.org">http:// www.guide-project.org</a>										■		■		
7	ONTOGOV	<a href="http://www.ontogov.com">http:// www.ontogov.com</a>												■		
8	SPIDER-WIN	<a href="http://www.spider-win.de">http://www.spider-win.de</a>												■		
9	USE-ME.GOV	<a href="http://www.usemegov.org/">http://www.usemegov.org/</a>												■		
10	EURAMP	<a href="http://www.napier.ac.uk/euramp/">http:// www.napier.ac.uk/euramp/</a>							■							
11	HIGHWAY	<a href="http://www.ist-highway.org">http:// www.ist-highway.org</a>						■								
12	ARTEMIS	<a href="http://www.srdc.metu.edu.tr/webpage/projects/artemis/">http://www.srdc.metu.edu.tr/webpage/projects/artemis/</a>				■					■	■	■			
13	AMICA	<a href="http://www.update-software.com/projects/Amica/">http://www.update-software.com/projects/Amica/</a>				■					■		■			
14	DICOEMS	<a href="http://82.186.43.90/dicoems/">http://82.186.43.90/dicoems/</a>				■							■			
15	E-LEGI	<a href="http://www.elegi.org">http:// www.elegi.org</a>								■						
16	ICLASS	<a href="http://www.dfki.de/iclass/">http://www.dfki.de/iclass/</a>								■						
17	DECOS	<a href="http://www.decos.at">http://www.decos.at</a>	■													
18	MOSQUITO	<a href="http://www.mosquito-online.org">http://www.mosquito-online.org</a>										■	■			
19	ASK-IT	<a href="http://www.ask-it.org">http://www.ask-it.org</a>													■	■
20	Support-EAM	<a href="http://www.support-eam.org">http:// www.support-eam.org</a>													■	

Mapping of IST FP6 project topics to standards bodies

4.2 Projects relevant to CENELEC topics

Number	Project	Project Web Site	NON SPECIFIC	Cable networks	Electrotechnical aspects of telecommunication equipment	PLC	Optical cables & networks	Consumer equipment for entertainment	Electrical equipment for people with special needs	HBES	Alarm systems	Digital broadcasting	Intelligent transport
1	OPERA	<a href="http://www.ist-opera.org">http:// www.ist-opera.org</a>				■							
2	EPERSPACE	<a href="http://www.ist-eperspace.org">http:// www.ist-eperspace.org</a>								■			
3	MEDIANET	<a href="http://www.ist-ipmedianet.org">http://www.ist-ipmedianet.org</a>								■			
4	TEAHA	<a href="http://www.teaha.org">http://www.teaha.org</a>								■			
5	ISMAEL	<a href="http://ismael-project.net">http:// ismael-project.net</a>			■								
6	SAFETEL	<a href="http://www.safetel-project.com/">http://www.safetel-project.com/</a>			■								
7	DECOS	<a href="http://www.decos.at">http://www.decos.at</a>	■										
8	ASK-IT	<a href="http://www.ask-it.org">http://www.ask-it.org</a>			■					■			
9	HEARCOM	<a href="http://www.hearcom.org">http:// www.hearcom.org</a>							■				
10	MICOLE	<a href="http://micole.cs.uta.fi/">http://micole.cs.uta.fi/</a>							■				
11	AIRNET	<a href="http://st-web.inov.pt/airnet">http://st-web.inov.pt/airnet</a>											■
12	GST	<a href="http://www.ertico.com/activiti/projects/gst/home.htm">www.ertico.com/activiti/projects/gst/home.htm</a>											■
13	HIGHWAY	<a href="http://www.ist-highway.org">www.ist-highway.org</a>											■
14	ISMAEL	<a href="http://ismael-project.net">http:// ismael-project.net</a>											■
15	SAFE-AIRPORT	<a href="http://xoomer.virgilio.it/safe-airport">http://xoomer.virgilio.it/safe-airport</a>											■
16	SAFETEL	<a href="http://www.safetel-project.com/">http://www.safetel-project.com/</a>											■
17	MAPPED	<a href="http://www.bmtproject.net/mapped">http://www.bmtproject.net/mapped</a>											■

## Mapping of IST FP6 project topics to standards bodies

### 4.3 Projects relevant to ETSI (and/or 3GPP) topics

Number	Project	Project Web Site	NON SPECIFIC		3GPP	Access and terminals	Broadband Access Networks	BROADCAST	DECT	Environmental Engineering	Emergency communications	EMC and radio spectrum matters	ESI	Human Factors	Lawful interception	PLT	Railway telecommunications	Tel. equipment safety	Security algorithms	Smart cards	Satellite systems	Terrestrial Trunked radio	NGN	User needs	Transmission & multiplexing
1	BROADWAN	<a href="http://www.broadwan.org">http://www.broadwan.org</a>					■																		
2	CAPANINA	<a href="http://www.capanina.org">http://www.capanina.org</a>					■														■				
3	GANDALF	<a href="http://www.ist-gandalf.org">http://www.ist-gandalf.org</a>				■	■																		
4	LASAGNE	<a href="http://www.ist-lasagne.org">http://www.ist-lasagne.org</a>																					■		
5	MUSE	<a href="http://www.ist-muse.org">http://www.ist-muse.org</a>				■																	■		
6	OPERA	<a href="http://www.ist-opera.org">http://www.ist-opera.org</a>													■										
7	U-BROAD	<a href="http://www.metalinkbb.com/site/app/UBoard_summary.asp">http:// www.metalinkbb.com/site/app/ UBoard_summary.asp</a>				■																	■	■	
8	4-MORE	<a href="http://www.ist-4more.org">http://www.ist-4more.org</a>				■																		■	
9	B-BONE	<a href="http://b-bone.ptinovacao.pt/ist-maestro.dyndns.org">http://b-bone.ptinovacao.pt/ist-maestro.dyndns.org</a>				■	■																	■	
10	MAESTRO	<a href="http://www.ist-maestro.dyndns.org">ist-maestro.dyndns.org</a>				■															■				
11	PHOENIX	<a href="http://www.ist-phoenix.org">http://www.ist-phoenix.org</a>				■																			
12	SIMPLICITY	<a href="http://www.ist-simplicity.org">http://www.ist-simplicity.org</a>				■																			
13	PULSERS	<a href="http://www.pulsers.net">http://www.pulsers.net</a>	■																						
14	BioSec	<a href="http://www.biosec.org">http:// www.biosec.org</a>											■							■	■				
15	Digital Passport	<a href="http://www.eudigitalpassport.com/">http://www.eudigitalpassport.com/</a>											■							■	■				
16	SecureE-Justice												■							■	■				
17	SECOQC	<a href="http://www.secoqc.net">http://www.secoqc.net</a>																							
18	EPERSPACE	<a href="http://www.ist-perspace.org">http:// www.ist-perspace.org</a>				■														■	■		■		
19	INSTINCT	<a href="http://www.ist-instinct.org">http://www.ist-instinct.org</a>				■																			
20	USE-ME.GOV	<a href="http://www.usemegov.org/">http://www.usemegov.org/</a>	■																						
21	AIRNET	<a href="http://www.airnet-project.com/">http://www.airnet-project.com/</a>	■																						
22	ASK-IT	<a href="http://www.ask-it.org">http://www.ask-it.org</a>												■										■	
23	ENABLED	<a href="http://www.enabledweb.org">http://www.enabledweb.org</a>												■										■	

### Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	Standards Bodies																					
			NON SPECIFIC	3GPP	Access and terminals	Broadband Access Networks	BROADCAST	DECT	Environmental Engineering	Emergency communications	EMC and radio spectrum matters	ESI	Human Factors	Lawful interception	PLT	Railway telecommunications	Tel. equipment safety	Security algorithms	Smart cards	Satellite systems	Terrestrial Trunked radio	NGN	User needs	Transmission & multiplexing
24	MOSQUITO	<a href="http://www.mosquito-online.org">http://www.mosquito-online.org</a>	■	■																				
25	INCCOM	<a href="http://www.inccom.org">http://www.inccom.org</a>																						
26	IPerG	<a href="http://iperg.sics.se/">http://iperg.sics.se/</a>		■																				
27	M-Pipe	<a href="http://www.ist-mpipe.org">http://www.ist-mpipe.org</a>		■																				
28	POLYMNIA	<a href="http://www.polymnia-eu.org">http://www.polymnia-eu.org</a>		■																				
29	EUROPCOM	<a href="http://www.ist-europcom.org">http://www.ist-europcom.org</a>																						
30	COGAIN	<a href="http://www.cogain.org">http://www.cogain.org</a>																						
31	HEARCOM	<a href="http://www.hearcom.org">http://www.hearcom.org</a>																						
32	MICOLE	<a href="http://micole.cs.uta.fi/">http://micole.cs.uta.fi/</a>																						

#### 4.4 Projects relevant to DVB topics

Number	Project	Project Web Site	Standards Bodies																					
			NON SPECIFIC	A/V coding for-mats	Convergence of broadcast & mobile services	Common interface	Copy protection	Digital satellite news gathering	Generic data broadcast & meta-data	DVB-H	DVB-T	Simulcrypt	IP Infrastructure	DVB-RC	DVB-S	Content protection	Storage media interoperability	MHP	Wireless home networks					
1	BROADWAN	<a href="http://www.broadwan.org">http://www.broadwan.org</a>			■																			
2	ENTHRONE	<a href="http://www.enthrone.org/">http://www.enthrone.org/</a>																						
3	INSTINCT	<a href="http://www.ist-instinct.org">http://www.ist-instinct.org</a>																						
4	MEDIANET	<a href="http://www.ist-ipmedianet.org">http://www.ist-ipmedianet.org</a>																						
5	MHP-CONFIDENCE	<a href="http://www.irt.de/mhp-confidence/">http://www.irt.de/mhp-confidence/</a>																						
6	ICLASS	<a href="http://www.dfki.de/iclass/">http://www.dfki.de/iclass/</a>	■																					

Mapping of IST FP6 project topics to standards bodies

4.5 Projects relevant to Ecma International topics

Number	Project	Project Web Site	NON SPECIFIC	Programming and scripting languages	Communications, networks & system interconnection	Product safety	Product-related environmental attributes	Acoustics compatibility	Electromagnetic compatibility	Volume and file structure	Universal 3D	Holographic information storage systems
1	META-CAMERA	<a href="http://www.ist-metavision.com/pub/METACAMERA.htm">http:// www.ist-metavision.com/pub/METACAMERA.htm</a>									■	■
2	UNI-VERSE	<a href="http://www.uni-verse.org">www.uni-verse.org</a>									■	■

4.6 Projects relevant to ERTICO topics

Number	Project	Project Web Site	Intelligent transport systems & services
1	AIRNET	<a href="http://st-web.inov.pt/airnet">http://st-web.inov.pt/airnet</a>	■
2	GST	<a href="http://www.gstforum.org">www.gstforum.org</a>	■
3	HIGHWAY	<a href="http://www.ist-highway.org">www.ist-highway.org</a>	■
4	ISMAEL	<a href="http://ismael-project.net">http:// ismael-project.net</a>	■
5	SAFE-AIRPORT	<a href="http://xoomer.virgilio.it/safe-airport">http://xoomer.virgilio.it/safe-airport</a>	■
6	SAFETEL	<a href="http://www.safe-airport.com">http:// www.safe-airport.com</a>	■
7	MAPPED	<a href="http://www.bmtproject.net/mapped">http://www.bmtproject.net/mapped</a>	■



Mapping of IST FP6 project topics to standards bodies

4.7 Projects relevant to OASIS topics

Number	Project	Project Web Site	NON SPECIFIC	AVDL	CAP	DITA	DSML	DOCB	ebXML	XACML	OPN DOC	SAML	SAO	SPML	UDDI	UBL	UBLNDR	WEB SERVICES	XCBF	DCML	LegalXML	PKI	
1	Artemis	<a href="http://www.srdc.metu.edu.tr/webpage/projects/artemis/home.html">http://www.srdc.metu.edu.tr/webpage/projects/artemis/home.html</a>							■						■			■					■
2	ASPIC	<a href="http://www.argumentation.org/overview.htm">http://www.argumentation.org/overview.htm</a>	■																				
3	Autonomic Communication	<a href="http://www.autonomic-communication.de/about-ac-e.html">http://www.autonomic-communication.de/about-ac-e.html</a>	■																				
4	BETSY	<a href="http://www.hitech-projects.com/euprojects/betsy">http://www.hitech-projects.com/euprojects/betsy</a>																	■				
5	BRICKS	<a href="http://www.brickcommunity.org">http://www.brickcommunity.org</a>	■																				
6	BROADWAN	<a href="http://www.telenor.no/broadwan">http://www.telenor.no/broadwan</a>	■																				
7	CAPANINA	<a href="http://www.capanina.org">http://www.capanina.org</a>	■																				
8	coregrid	<a href="http://www.coregrid.net">http://www.coregrid.net</a>	■																				
9	COSPA	<a href="http://www.cospa-project.org">http://www.cospa-project.org</a>	■																				
10	DIADEM FIRE-WALL	<a href="http://www.diadem-firewall.org/index.php">http://www.diadem-firewall.org/index.php</a>	■																				■
11	Dicoems	<a href="http://www.dicoems.com/site/index.php">http://www.dicoems.com/site/index.php</a>	■																				■
12	DIP	<a href="http://www.deri.ie/research/projects/dip/index.html">http://www.deri.ie/research/projects/dip/index.html</a>																	■				
13	E-justice	<a href="http://www.ejustice.eu.com">http://www.ejustice.eu.com</a>	■																				■
14	EMAYOR	<a href="http://www.emayor.org">http://www.emayor.org</a>								■		■											■
15	ET4US	<a href="http://www.ims.demokritos.gr/ET4US/index.htm">http://www.ims.demokritos.gr/ET4US/index.htm</a>	■																				
16	EU Digital Passport	<a href="http://www.eudigitalpassport.com/summary.htm">http://www.eudigitalpassport.com/summary.htm</a>																					■
17	EuroNGI	<a href="http://eurongi.enst.fr/en_accueil.html">http://eurongi.enst.fr/en_accueil.html</a>	■																				
18	FLOSSpols	<a href="http://flosspols.org">http://flosspols.org</a>	■																				
19	FLOSSworld	<a href="http://flossworld.org">http://flossworld.org</a>	■																				
20	GRIDCC	<a href="http://www.gridcc.org">http://www.gridcc.org</a>	■																				
21	GridCoord	<a href="http://www.gridcoord.org/grid/portal">http://www.gridcoord.org/grid/portal</a>	■																				
22	GUIDE	<a href="http://istrg.som.surrey.ac.uk/projects/guide">http://istrg.som.surrey.ac.uk/projects/guide</a>	■																				■
23	INFRAWEBBS	<a href="http://www.infrawebs.org">http://www.infrawebs.org</a>	■										■		■								■
24	INSTNCT	<a href="http://www.dea.brunel.ac.uk/instinct/Home.htm">http://www.dea.brunel.ac.uk/instinct/Home.htm</a>	■																				

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC	AVDL	CAP	DITA	DSML	DOCB	ebXML	XACML	OPN DOC	SAML	SAO	SPML	UDDI	UBL	UBLNDR	WEB SERVICES	XCBF	DCML	LegalXML	PKI
25	INTEROP-NoE	<a href="http://www.interop-noe.org">http://www.interop-noe.org</a>	■																			
26	Knowledge Web	<a href="http://knowledgeweb.semanticweb.org">http://knowledgeweb.semanticweb.org</a>																■				
27	MAGNET	<a href="http://www.ist-magnet.org">http://www.ist-magnet.org</a>	■																			■
28	NEWS	<a href="http://www.it.uc3m.es/news-int">http://www.it.uc3m.es/news-int</a>																				
29	NO-REST	<a href="http://www.no-rest.org">http://www.no-rest.org</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30	POSITIF	<a href="http://www.positif.org">http://www.positif.org</a>	■																			■
31	SATINE	<a href="http://www.srdc.metu.edu.tr/webpage/projects/satine">http://www.srdc.metu.edu.tr/webpage/projects/satine</a>								■					■							
32	SCARD	<a href="http://www.scard-project.org">http://www.scard-project.org</a>	■																			■
33	SECOQC	<a href="http://www.secoqc.net">http://www.secoqc.net</a>	■																			■
34	SecurE Justice	<a href="http://secure-justice.org">http://secure-justice.org</a>																			■	■
35	SEEMseed	<a href="http://www.seemseed.net/default.aspx">http://www.seemseed.net/default.aspx</a>	■																			■
36	SEINIT	<a href="http://www.seinit.org">http://www.seinit.org</a>	■																			
37	SODIUM	<a href="http://www.atc.gr/sodium">http://www.atc.gr/sodium</a>	■																			
38	Support-EAM	<a href="http://www.support-eam.org/supporteam/default">http://www.support-eam.org/supporteam/default</a>	■																			
39	TERREGOV	<a href="http://www.terregov.eupm.net/my_spip/index.php">http://www.terregov.eupm.net/my_spip/index.php</a>	■															■				
40	TOSSAD	<a href="http://tossad.org">http://tossad.org</a>	■																			
41	UBISEC	<a href="http://www.c-lab.de/ubisec">http://www.c-lab.de/ubisec</a>	■																			■
42	VE-Forum	<a href="http://193.72.209.176/default.asp?P=369">http://193.72.209.176/default.asp?P=369</a>	■																		■	
43	visnet-noe	<a href="http://www.visnet-noe.org">http://www.visnet-noe.org</a>	■																			■
44	WS2	<a href="http://www.html2text.com/HTML2Text/text114209+7ijj/2004/WS2">http://www.html2text.com/HTML2Text/text114209+7ijj/2004/WS2</a>	■																			

4.8 Projects relevant to OMG topics

Number	Project	Project Web Site	Non-specific	MDA	UML	MOF	XMI-XML	CWM	CORBA	OMA
1	AgentLink	<a href="http://www.agentlink.org">http://www.agentlink.org</a>	■							
2	AOSD-Europe	<a href="http://www.aosd-europe.net">http://www.aosd-europe.net</a>	■							

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	Non-specific	MDA	UML	MOF	XMI-XML	CWM	CORBA	OMA
3	ASG	<a href="http://asg-platform.org/cgi-bin/twiki/view/Public">http://asg-platform.org/cgi-bin/twiki/view/Public</a>	■							
4	Autonomic Communication	<a href="http://www.autonomic-communication.de/about-ac-e.html">http://www.autonomic-communication.de/about-ac-e.html</a>	■							
5	BROADWAN	<a href="http://www.telenor.no/broadwan">http://www.telenor.no/broadwan</a>	■							
6	CASCOM	<a href="http://www.ist-cascom.org">http://www.ist-cascom.org</a>	■							
7	coregrid	<a href="http://www.coregrid.net">http://www.coregrid.net</a>	■							
8	COSPA	<a href="http://www.cospa-project.org">http://www.cospa-project.org</a>	■							
9	EuroNGI	<a href="http://eurongi.enst.fr/en_accueil.html">http://eurongi.enst.fr/en_accueil.html</a>	■							
10	FLOSSpols	<a href="http://flosspols.org">http://flosspols.org</a>	■							
11	FLOSSworld	<a href="http://flossworld.org">http://flossworld.org</a>	■							
12	GRIDCC	<a href="http://www.gridcc.org">http://www.gridcc.org</a>	■							
13	GridCoord	<a href="http://www.gridcoord.org/grid/portal">http://www.gridcoord.org/grid/portal</a>	■							
14	IntelCities	<a href="http://www.intelcitiesproject.com/">http://www.intelcitiesproject.com/</a>	■							
15	COMPARE	<a href="http://www.ist-compare.org">http://www.ist-compare.org</a>							■	
16	Modelware	<a href="http://www.modelware-ist.org">http://www.modelware-ist.org</a>		■	■					
17	M-Pipe	<a href="http://www.ist-mpipe.org">http://www.ist-mpipe.org</a>	■							
18	NextGRID	<a href="http://www.nextgrid.org">http://www.nextgrid.org</a>	■							
19	NO-REST	<a href="http://www.no-rest.org">http://www.no-rest.org</a>	■	■	■	■	■	■	■	■
20	PROMISE	<a href="http://www.promise.no">http://www.promise.no</a>	■		■					
21	Provenance	<a href="http://twiki.gridprovenance.org/bin/view/Provenance">http://twiki.gridprovenance.org/bin/view/Provenance</a>	■							
22	RODIN	<a href="http://rodin.cs.ncl.ac.uk/index.htm">http://rodin.cs.ncl.ac.uk/index.htm</a>	■		■					
23	RUNES	<a href="http://www.ist-runes.org">http://www.ist-runes.org</a>	■		■					
24	SECSE	<a href="http://secse.eng.it/pls/secse/ecolnet.home">http://secse.eng.it/pls/secse/ecolnet.home</a>	■							
25	SEEMseed	<a href="http://www.seemseed.net/default.aspx">http://www.seemseed.net/default.aspx</a>	■							
26	SEKT	<a href="http://www.sekt-project.com">http://www.sekt-project.com</a>	■	■	■					■
27	SODIUM	<a href="http://www.atc.gr/sodium">http://www.atc.gr/sodium</a>	■							
28	Support-EAM	<a href="http://www.support-eam.org/supporteam/default">http://www.support-eam.org/supporteam/default</a>	■							
29	TOSSAD	<a href="http://tossad.org">http://tossad.org</a>	■							

Mapping of IST FP6 project topics to standards bodies

4.9 Projects relevant to RosettaNET topics

Number	Project	Project Web Site	NON SPECIFIC	Partner +product re-view PIP	Product in-formation PIP	Order man-agement PIP	Inventory management PIP	marketing in-formation management PIP	Service and support PIP	Manufacturing PIP
1	aceMedia	<a href="http://www.acedmedia.org/aceMedia">http://www.acedmedia.org/aceMedia</a>	■	■	■	■	■	■	■	■
2	Axmedis	<a href="http://www.axmedis.org">http://www.axmedis.org</a>	■							
3	CoBIs	<a href="http://www.cobis-online.de">http://www.cobis-online.de</a>	■							
4	coregrid	<a href="http://www.coregrid.net">http://www.coregrid.net</a>	■							
5	COSPA	<a href="http://www.cospa-project.org">http://www.cospa-project.org</a>	■							
6	DBE	<a href="http://www.digital-ecosystem.org/html">http://www.digital-ecosystem.org/html</a>	■	■	■	■	■	■	■	■
7	EuroNGI	<a href="http://eurongi.enst.fr/en_accueil.html">http://eurongi.enst.fr/en_accueil.html</a>	■							
8	FLOSSpols	<a href="http://flosspols.org">http://flosspols.org</a>	■							
9	FLOSSworld	<a href="http://flossworld.org">http://flossworld.org</a>	■							
10	NextGRID	<a href="http://www.nextgrid.org">http://www.nextgrid.org</a>	■							
11	NO-REST	<a href="http://www.no-rest.org">http://www.no-rest.org</a>	■	■	■	■	■	■	■	■
12	SEEMseed	<a href="http://www.seemseed.net/default.aspx">http://www.seemseed.net/default.aspx</a>	■							
13	Support-EAM	<a href="http://www.support-eam.org/supporteam/default">http://www.support-eam.org/supporteam/default</a>	■							
14	TOSSAD	<a href="http://tossad.org">http://tossad.org</a>	■							
15	XBRL-EU	<a href="http://www.xbrl-eu.org">http://www.xbrl-eu.org</a>	■							

4.10 Projects relevant to W3C topics

Number	Project	Project Web Site	NON SPECIFIC	INTERACTION	MOBILE WEB	VOICE	WEB SERVICES	SEMANTIC WEB	PRIVACY	XML, Xquery/Xpath, DOM, XML Base, XPointer	RDF/XML, SPARQL	URI/IRI, HTTP
1	Agamemnon	<a href="http://services.txt.it/agamemnon">http://services.txt.it/agamemnon</a>	■			■						
2	AgentLink	<a href="http://www.agentlink.org">http://www.agentlink.org</a>					■			■	■	
3	Akogrimo	<a href="http://www.mobilegrids.org">http://www.mobilegrids.org</a>	■		■				■			
4	ALVIS	<a href="http://www.alvis.info/alvis">http://www.alvis.info/alvis</a>					■					■

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC	INTERACTION	MOBILE WEB	VOICE	WEB SERVICES	SEMANTIC WEB	PRIVACY	XML, Xquery/Xpath, DOM, XML Base, XPointer	RDF/XML, SPARQL	URI/IRI, HTTP
5	Ambient Networks	<a href="http://www.ambient-networks.org">http://www.ambient-networks.org</a>	■		■				■			
6	AMI	<a href="http://www.amiproject.org">http://www.amiproject.org</a>	■			■						
7	AMICA @ point of care	<a href="http://www.amica-eu.org">http://www.amica-eu.org</a>							■			
8	AMICOM	<a href="http://www.amicom.info">http://www.amicom.info</a>	■		■							
9	AMIRA	<a href="https://www.wi2.uni-trier.de/de/cms/projects/Amira">https://www.wi2.uni-trier.de/de/cms/projects/Amira</a>										
10	AOSD-Europe	<a href="http://www.aosd-europe.net">http://www.aosd-europe.net</a>	■									
11	Artemis	<a href="http://www.srdc.metu.edu.tr/webpage/projects/artemis/">http://www.srdc.metu.edu.tr/webpage/projects/artemis/</a>					■		■	■		■
12	ASG	<a href="http://asg-platform.org/cgi-bin/twiki/view/Public">http://asg-platform.org/cgi-bin/twiki/view/Public</a>					■	■				
13	ASPIC	<a href="http://www.argumentation.org/overview.htm">http://www.argumentation.org/overview.htm</a>						■				
14	Autonomic Communication	<a href="http://www.autonomic-communication.de/about-ac-e.html">http://www.autonomic-communication.de/about-ac-e.html</a>	■									
15	AXMEDIS	<a href="http://www.axmedis.org">http://www.axmedis.org</a>										
16	b-bone	<a href="http://b-bone.ptinovacao.pt">http://b-bone.ptinovacao.pt</a>			■							
17	BenToWeb	<a href="http://bentoweb.org/home">http://bentoweb.org/home</a>	■									
18	BETSY	<a href="http://www.hitech-projects.com/euprojects/betsy">http://www.hitech-projects.com/euprojects/betsy</a>			■		■					■
19	Biopattern	<a href="http://www.biopattern.org/index.html">http://www.biopattern.org/index.html</a>	■				■		■			
20	BioSec	<a href="http://www.biosec.org/index.php">http://www.biosec.org/index.php</a>	■						■			
21	BioSecure	<a href="http://www.biosecure.info">http://www.biosecure.info</a>	■						■			
22	BRICKS	<a href="http://www.brickscmmunity.org">http://www.brickscmmunity.org</a>	■									
23	BROADWAN	<a href="http://www.telenor.no/broadwan">http://www.telenor.no/broadwan</a>			■							
24	CALIBRE	<a href="http://www.calibre.ie">http://www.calibre.ie</a>	■									
25	CAPANINA	<a href="http://www.capanina.org">http://www.capanina.org</a>	■									
26	CAREPATHS	<a href="http://www.carepaths.eupm.net/my_spip/index.php">http://www.carepaths.eupm.net/my_spip/index.php</a>			■		■		■			■
27	CASCOM	<a href="http://www.ist-cascom.org">http://www.ist-cascom.org</a>	■									
28	CONTENT4ALL	<a href="http://www.content4all.org">http://www.content4all.org</a>	■									
29	COPRAS	<a href="http://www.w3.org/2004/copras">http://www.w3.org/2004/copras</a>	■									
30	coregrid	<a href="http://www.coregrid.net">http://www.coregrid.net</a>	■									
31	COSPA	<a href="http://www.cospa-project.org">http://www.cospa-project.org</a>	■									
32	DAIDALOS	<a href="http://www.ist-daidalos.org">http://www.ist-daidalos.org</a>	■		■				■			
33	DIADEM FIREWALL	<a href="http://www.diadem-firewall.org/index.php">http://www.diadem-firewall.org/index.php</a>	■						■			
34	DICOEMS	<a href="http://www.dicoems.com/site/index.php">http://www.dicoems.com/site/index.php</a>	■		■				■			

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC	INTERACTION	MOBILE WEB	VOICE	WEB SERVICES	SEMANTIC WEB	PRIVACY	XML, Xquery/Xpath, DOM, XML Base, XPointer	RDF/XML, SPARQL	URI/IRI, HTTP
35	diligent	<a href="http://www.diligentproject.org">http://www.diligentproject.org</a>							■			
36	DIP	<a href="http://www.deri.ie/research/projects/dip/index.html">http://www.deri.ie/research/projects/dip/index.html</a>					■	■				
37	doc@hand	<a href="http://services.txt.it/docathand">http://services.txt.it/docathand</a>			■				■			
38	E-justice	<a href="http://www.ejustice.eu.com">http://www.ejustice.eu.com</a>	■						■			
39	EMAYOR	<a href="http://www.emayor.org">http://www.emayor.org</a>	■						■			
40	ENABLED	<a href="http://www.enabledweb.org">http://www.enabledweb.org</a>	■									
41	E2R	<a href="http://e2r.motlabs.com/project_overview">http://e2r.motlabs.com/project_overview</a>			■		■					■
42	ET4US	<a href="http://www.ims.demokritos.gr/ET4US/index.htm">http://www.ims.demokritos.gr/ET4US/index.htm</a>	■						■			
43	eu-DOMAIN	<a href="http://www.eu-domain.eu.com/pn/index.php">http://www.eu-domain.eu.com/pn/index.php</a>	■									
44	EuroNGI	<a href="http://eurongi.enst.fr/en_accueil.html">http://eurongi.enst.fr/en_accueil.html</a>	■									
45	FLOSSPOLs	<a href="http://flosspols.org">http://flosspols.org</a>	■									
46	FLOSSworld	<a href="http://flossworld.org">http://flossworld.org</a>	■									
47	GOLLUM	<a href="http://www.ist-gollum.org">http://www.ist-gollum.org</a>	■		■							
48	GRIDCC	<a href="http://www.gridcc.org">http://www.gridcc.org</a>	■									
49	GridCoord	<a href="http://www.gridcoord.org/grid/portal">http://www.gridcoord.org/grid/portal</a>	■									
50	GST Workflow	<a href="http://www.gstproject.org">http://www.gstproject.org</a>	■		■							
51	GUIDE	<a href="http://istrq.som.surrey.ac.uk/projects/guide">http://istrq.som.surrey.ac.uk/projects/guide</a>	■						■			
52	HEARCOM	<a href="http://www.hearcom.info/">http://www.hearcom.info/</a>	■			■						
53	Highway	<a href="http://www.ist-highway.org">http://www.ist-highway.org</a>	■		■					■		
54	HIWIRE	<a href="http://cvsp.cs.ntua.gr/projects/bin/view/HIWIRE/WebHome">http://cvsp.cs.ntua.gr/projects/bin/view/HIWIRE/WebHome</a>	■			■						
55	HOPS	<a href="http://www.bcn.es/hops">http://www.bcn.es/hops</a>				■	■					
56	HPC4U	<a href="http://www.hpc4u.org/public">http://www.hpc4u.org/public</a>	■									
57	imagineit	<a href="http://www.imagineit-eu.org">http://www.imagineit-eu.org</a>	■									
58	Infrawebs	<a href="http://www.infrawebs.org">http://www.infrawebs.org</a>						■		■		
59	IntelCities	<a href="http://www.intelcitiesproject.com/">http://www.intelcitiesproject.com/</a>	■									
60	InteliGrid	<a href="http://www.inteligrid.com">http://www.inteligrid.com</a>	■					■				
61	INTEROP	<a href="http://www.interop-noe.org">http://www.interop-noe.org</a>	■									
62	IPerG	<a href="http://iperq.sics.se/">http://iperq.sics.se/</a>	■									
63	ULTRA	<a href="http://ist-ultra.org">http://ist-ultra.org</a>					■					
64	Knowledge Web	<a href="http://knowledgeweb.semanticweb.org">http://knowledgeweb.semanticweb.org</a>		■			■	■			■	
65	MAESTRO	<a href="http://ist-maestro.dyndns.org/MAESTRO/index.htm">http://ist-maestro.dyndns.org/MAESTRO/index.htm</a>	■									

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC	INTERACTION	MOBILE WEB	VOICE	WEB SERVICES	SEMANTIC WEB	PRIVACY	XML, Xquery/Xpath, DOM, XML Base, XPointer	RDF/XML, SPARQL	URI/IRI, HTTP
66	MAGNET	<a href="http://www.ist-magnet.org">http://www.ist-magnet.org</a>			■				■			
67	mCDN	<a href="http://www.comtec.e-technik.uni-kassel.de/content/projects/mcdn">http://www.comtec.e-technik.uni-kassel.de/content/projects/mcdn</a>	■		■							
68	MICOLE	<a href="http://micole.cs.uta.fi">http://micole.cs.uta.fi</a>	■			■						
69	MIMOSA	<a href="http://www.mimosa-fp6.com/">http://www.mimosa-fp6.com/</a>	■		■							
70	MobileIN	<a href="http://www.ist-mobilein.org">http://www.ist-mobilein.org</a>	■		■							
71	MobiLife	<a href="https://www.ist-mobilife.org">https://www.ist-mobilife.org</a>	■		■							
72	MOCCA	<a href="http://mocca.objectweb.org/Wiki.jsp?page=Main">http://mocca.objectweb.org/Wiki.jsp?page=Main</a>	■		■							
73	MOSAIC	<a href="http://www.mosaic-network.org">http://www.mosaic-network.org</a>	■		■							
74	MOSQUITO	<a href="https://www.mosquito-online.org">https://www.mosquito-online.org</a>	■		■				■			
75	M-Pipe	<a href="http://www.ist-mpipe.org">http://www.ist-mpipe.org</a>	■									
76	MULIMOB	<a href="http://www.mulimob.org">http://www.mulimob.org</a>			■							
77	MUSCLE	<a href="http://www.muscle-noe.org">http://www.muscle-noe.org</a>								■		
78	MUSE	<a href="http://www.ist-muse.org">http://www.ist-muse.org</a>	■		■							
79	MWeb	<a href="http://www.w3.org/2004/MWeb">http://www.w3.org/2004/MWeb</a>	■	■	■	■	■	■	■	■	■	■
80	MYCAREVENT	<a href="http://www.mycarevent.com/default.aspx">http://www.mycarevent.com/default.aspx</a>	■		■						■	
81	MYHEART	<a href="http://www.hitech-projects.com/euprojects/myheart">http://www.hitech-projects.com/euprojects/myheart</a>	■		■				■			
82	NeCST	<a href="http://www.strep-necst.org">http://www.strep-necst.org</a>	■									
83	NEWCOM	<a href="http://www.ismb.it/newcom">http://www.ismb.it/newcom</a>	■		■				■			
84	NEWS	<a href="http://www.it.uc3m.es/news-int">http://www.it.uc3m.es/news-int</a>					■	■				■
85	NextGRID	<a href="http://www.nextgrid.org">http://www.nextgrid.org</a>	■									
86	NOBEL	<a href="http://www.ist-nobel.org/Nobel/servlet/Nobel.Main?seccio=3_1">http://www.ist-nobel.org/Nobel/servlet/Nobel.Main?seccio=3_1</a>	■									
87	NO-REST	<a href="http://www.no-rest.org">http://www.no-rest.org</a>	■	■	■	■	■	■	■	■	■	■
88	ONTOGOV	<a href="http://www.ontogov.com">http://www.ontogov.com</a>					■	■				
89	ORCHESTRA	<a href="http://www.eu-orchestra.org/overview.shtml">http://www.eu-orchestra.org/overview.shtml</a>	■									
90	POLYMNIA	<a href="http://www.polymnia-eu.org">http://www.polymnia-eu.org</a>	■									
91	POMPEI	<a href="http://www.pompei-eu.com/">http://www.pompei-eu.com/</a>	■		■	■			■			■
92	POSITIF	<a href="http://www.positif.org">http://www.positif.org</a>	■						■			
93	PrestoSpace	<a href="http://www.prestospace.org">http://www.prestospace.org</a>										
94	PRIME	<a href="http://www.prime-project.eu.org">http://www.prime-project.eu.org</a>	■						■			
95	REVERSE	<a href="http://reverse.net">http://reverse.net</a>	■									
96	RUNES	<a href="http://www.ist-runes.org">http://www.ist-runes.org</a>	■		■							

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC	INTERACTION	MOBILE WEB	VOICE	WEB SERVICES	SEMANTIC WEB	PRIVACY	XML, Xquery/Xpath, DOM, XML Base, XPointer	RDF/XML, SPARQL	URI/IRI, HTTP
97	SAFIR	<a href="http://www.safir-fp6.org/home.htm">http://www.safir-fp6.org/home.htm</a>	■		■	■						
98	SATINE	<a href="http://www.srdc.metu.edu.tr/webpage/projects/satine">http://www.srdc.metu.edu.tr/webpage/projects/satine</a>					■	■		■		
99	SCARD	<a href="http://www.scard-project.org">http://www.scard-project.org</a>	■						■			
100	SECOQC	<a href="http://www.secoqc.net">http://www.secoqc.net</a>	■						■			
101	SecurE Justice	<a href="http://secure-justice.org">http://secure-justice.org</a>	■						■			
102	SEEMseed	<a href="http://www.seemseed.net/default.aspx">http://www.seemseed.net/default.aspx</a>	■									
103	SEINIT	<a href="http://www.seinit.org">http://www.seinit.org</a>	■						■			
104	SEKT	<a href="http://www.sekt-project.com">http://www.sekt-project.com</a>	■									
105	Semantic Mining	<a href="http://www.semanticmining.org/">http://www.semanticmining.org/</a>	■					■		■		
106	SIMAC	<a href="http://www.semanticaudio.org">http://www.semanticaudio.org</a>	■					■				
107	SIMDAT	<a href="http://www.scai.fraunhofer.de/simdat.html">http://www.scai.fraunhofer.de/simdat.html</a>	■					■				
108	SIMILAR	<a href="http://www.similar.cc">http://www.similar.cc</a>	■	■								
109	SIMS	<a href="http://www.sims-eu.com">http://www.sims-eu.com</a>	■		■							
110	SPECTRUM	<a href="http://www.telecom.ece.ntua.gr/spectrum/navigation.htm">http://www.telecom.ece.ntua.gr/spectrum/navigation.htm</a>	■		■							
111	Support-EAM	<a href="http://www.support-eam.org/supporteam/default">http://www.support-eam.org/supporteam/default</a>	■									
112	Tai-Chi	<a href="http://www.taichi.cf.ac.uk/node/1">http://www.taichi.cf.ac.uk/node/1</a>	■			■						
113	TALK	<a href="http://www.talk-project.org">http://www.talk-project.org</a>				■						
114	TC-STAR	<a href="http://www.tc-star.org">http://www.tc-star.org</a>	■			■						
115	TERREGOV	<a href="http://www.terregov.eupm.net/my_spip/index.php">http://www.terregov.eupm.net/my_spip/index.php</a>	■				■	■				
116	TOSSAD	<a href="http://tossad.org">http://tossad.org</a>	■									
117	UBISEC	<a href="http://www.c-lab.de/ubisec">http://www.c-lab.de/ubisec</a>	■		■				■			
118	UniGridS	<a href="http://www.unigrids.org">http://www.unigrids.org</a>	■									
119	USE-ME.GOV	<a href="http://www.usemegov.org">http://www.usemegov.org</a>	■									
120	VE-Forum	<a href="http://193.72.209.176/default.asp?P=369">http://193.72.209.176/default.asp?P=369</a>	■						■	■		
121	VISNET	<a href="http://www.visnet-noe.org">http://www.visnet-noe.org</a>	■						■			
122	WCAM	<a href="http://www.ist-wcam.org">http://www.ist-wcam.org</a>	■		■							
123	WIDENS	<a href="http://www.widens.org">http://www.widens.org</a>	■		■							
124	WINDECT	<a href="http://www.windect.ethz.ch">http://www.windect.ethz.ch</a>	■		■							
125	WINNER	<a href="https://www.ist-winner.org">https://www.ist-winner.org</a>	■		■							
126	WS2	<a href="http://www.html2text.com/HTML2Text/text114209+7ijj/2004/WS2">http://www.html2text.com/HTML2Text/text114209+7ijj/2004/WS2</a>		■	■	■	■	■	■	■	■	■









Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	NON SPECIFIC		Architecture	Directory In-	Enterprise	Grid Enterprise	Jericho	Messaging	Platform	Real-Time & Em-	Security	UDEF												
			Architecture Development method (ADM)	identity Management	Secure Services	ARM	AQRM	OpenPegasus	Network Centric Profiles	COE	Meta-Arch. - Security	trust models	E-mail	security certificates	SPAM	Instant messaging	UNIX, POSIX and LINUX	Security intersections	Safety/Mission Crit. apps.	Real-time Java	Active Loss Prevention	access control	Security Architectures	UDEF		
53	EuroNGI	<a href="http://eurongi.enst.fr">http://eurongi.enst.fr</a>	■																							
54	EUROPCOM	<a href="http://www.ist-europcom.org/">http://www.ist-europcom.org/</a>	■																							
55	FIDIS	<a href="http://www.fidis.net">http://www.fidis.net</a>		■		■																				
56	flexinet	<a href="http://www.ist-flexinet.org">http://www.ist-flexinet.org</a>																								
57	FLOSSpols	<a href="http://flosspols.org">http://flosspols.org</a>	■																							
58	FLOSSworld	<a href="http://flossworld.org">http://flossworld.org</a>	■																							
59	GOLLUM	<a href="http://www.ist-gollum.org">http://www.ist-gollum.org</a>	■																							
60	GORDA	<a href="http://gorda.di.uminho.pt">http://gorda.di.uminho.pt</a>																								
61	GRIDCC	<a href="http://www.gridcc.org">http://www.gridcc.org</a>	■																							
62	GridCoord	<a href="http://www.gridcoord.org">http://www.gridcoord.org</a>	■																							
63	GST Workflow	<a href="http://www.gstproject.org">http://www.gstproject.org</a>	■																							
64	Highway	<a href="http://www.ist-highway.org">http://www.ist-highway.org</a>	■																							
65	HIJA	<a href="https://www.hija.info">https://www.hija.info</a>	■																							
66	HPC4U	<a href="http://www.hpc4u.org/public">http://www.hpc4u.org/public</a>	■																							
67	HYCON	<a href="http://www.ist-hycon.org">http://www.ist-hycon.org</a>	■																							
68	ICODES	<a href="http://icodes.offis.de">http://icodes.offis.de</a>		■																						
69	Inanov	<a href="http://www.inanov.fr">http://www.inanov.fr</a>	■																							
70	Infrawebs	<a href="http://www.infrawebs.org">http://www.infrawebs.org</a>	■	■																						
71	Inspired	<a href="http://www.inspiredproject.com">http://www.inspiredproject.com</a>	■																							
72	IntelCities	<a href="http://www.intelcitiesproject.com/">http://www.intelcitiesproject.com/</a>	■																							
73	InteliGrid	<a href="http://www.inteligrid.com">http://www.inteligrid.com</a>	■																							



Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	Standards Bodies																					
			NON SPECIFIC	Architecture Development method (ADM)	Architecture	Directory Interoperability	Enterprise Management	Grid Enterprise Services	Jericho	Messaging	Platform	Real-Time & Embedded Systems	Security	UDEF										
				Identity Management	Secure Services	ARM	AQRM	OpenPegasus	Network Centric Profiles	COE	Meta-Arch. - Security	trust models	E-mail	security certificates	SPAM	Instant messaging	UNIX, POSIX and LINUX	Security intersections	Safety/Mission Crit. apps.	Real-time Java	Active Loss Prevention	access control	Security Architectures	UDEF
92	Orchestra	<a href="http://www.eu-orchestra.org">http://www.eu-orchestra.org</a>	■															■	■		■	■		
93	palcom	<a href="http://www.ist-palcom.org">http://www.ist-palcom.org</a>	■															■	■		■	■		
94	PIPS	<a href="http://193.178.235.46:8088/pips">http://193.178.235.46:8088/pips</a>	■			■	■	■																
95	POMPEI	<a href="http://www.pompei-eu.com/">http://www.pompei-eu.com/</a>	■								■	■				■		■	■	■	■	■	■	
96	Positif	<a href="http://www.positif.org">http://www.positif.org</a>	■			■	■	■																
97	PrestoSpace	<a href="http://www.prestospace.org">http://www.prestospace.org</a>	■																		■	■		■
98	PRIME	<a href="http://www.prime-project.eu.org">http://www.prime-project.eu.org</a>	■	■	■																			
99	PROMISE	<a href="http://www.promise.no">http://www.promise.no</a>	■																■	■	■			
100	PROVENANCE	<a href="http://twiki.gridprovenance.org/bin/view/Provenance">http://twiki.gridprovenance.org/bin/view/Provenance</a>	■			■	■	■	■	■	■	■												
101	RUNES	<a href="http://www.ist-runes.org">http://www.ist-runes.org</a>	■																■	■	■			
102	SAFIR	<a href="http://www.safir-fp6.org">http://www.safir-fp6.org</a>	■																■	■	■			
103	SATINE	<a href="http://www.srdc.metu.edu.tr/webpage/projects/satine">http://www.srdc.metu.edu.tr/webpage/projects/satine</a>							■	■														
104	SECSE	<a href="http://secse.eng.it/pls/secse/ecolnet.home">http://secse.eng.it/pls/secse/ecolnet.home</a>	■																					
105	SecurE Justice	<a href="http://secure-justice.org">http://secure-justice.org</a>	■																■	■	■	■	■	
106	SecurePhone	<a href="http://www.secure-phone.info">http://www.secure-phone.info</a>	■								■	■												
107	SecurIST	<a href="http://www.ist-securist.org/">http://www.ist-securist.org/</a>	■	■	■																			
108	SEEMseed	<a href="http://www.seemseed.net">http://www.seemseed.net</a>	■			■	■	■	■	■	■	■												
109	Seinit	<a href="http://www.seinit.org">http://www.seinit.org</a>	■	■	■																	■	■	

Mapping of IST FP6 project topics to standards bodies

Number	Project	Project Web Site	Standards Bodies																						
			NON SPECIFIC	Architecture Development method (ADM)	Identity Management	Secure Services	ARM	AQRM	OpenPegasus	Network Centric Profiles	COE	Meta-Arch. - Security trust models	E-mail	security certificates	SPAM	Instant messaging	UNIX, POSIX and LINUX	Security intersections	Safety/Mission Crit. apps.	Real-time Java	Active Loss Prevention	access control	Security Architectures	UDEF	
110	SIMDAT	<a href="http://www.simdat.org">http://www.simdat.org</a>	■																						
111	SIMPLICITY	<a href="http://www.ist-simplicity.org">http://www.ist-simplicity.org</a>	■																						
112	SIMS	<a href="http://www.sims-eu.com">http://www.sims-eu.com</a>	■																						
113	SODIUM	<a href="http://www.atc.gr/sodium">http://www.atc.gr/sodium</a>	■																						
114	SPECTRUM	<a href="http://www.ist-spectrum.org">http://www.ist-spectrum.org</a>	■																						
115	Support-EAM	<a href="http://www.support-eam.org">http://www.support-eam.org</a>	■																						
116	TELCERT	<a href="http://www.opengroup.org/telcert">http://www.opengroup.org/telcert</a>	■																						
117	TIRAMISU	<a href="http://www.tiramisu-project.org">http://www.tiramisu-project.org</a>	■																						
118	TOSSAD	<a href="http://tossad.org">http://tossad.org</a>	■																						
119	UBISEC	<a href="http://www.c-lab.de/ubisec">http://www.c-lab.de/ubisec</a>	■																						
120	UniGridS	<a href="http://www.unigrids.org">http://www.unigrids.org</a>	■																						
121	USE-ME.GOV	<a href="http://www.usemegov.org">http://www.usemegov.org</a>	■																						
122	VE-Forum	<a href="http://www.ve-forum.org">http://www.ve-forum.org</a>			■	■																			
123	WIN	<a href="http://www.win-eu.org">http://www.win-eu.org</a>	■																						
124	WS2	<a href="http://www.w3.org/2004/WS2/">http://www.w3.org/2004/WS2/</a>	■																						

## 5. Conclusions

This deliverable analyses to which extent the IST programme is funding research areas where standards bodies and industry consortia are active. The analysis provided in this deliverable is based on reviewing project information publicly available, in particular related to the stated objectives of each project as well as on reviewing the answers to the questionnaires that have been sent to the FP6 IST projects Call 1 and 2. For the standards bodies a similar analysis of public information available on their web sites was performed.

From a quantitative perspective the following results have been reached, taking into account that – as underlined earlier – the results demonstrated in this deliverable indicate commonality when there is a significant correlation between general issues addressed by standards bodies and projects, and does not so much concern topics on the periphery.

<b>Standards organization</b>	<b>Number of main standardization areas</b>	<b>Number of areas covered at least by one of the projects</b>	<b>%</b>
CEN/ISSS	13	10	76,9
CENELEC	10	5	50,0
ETSI	21	14	66,7
DVB	8	16	50,0
Ecma	9	2	22,2
ERTICO	1	1	100,0
OASIS	19	19	100,0
OMG	7	7	100,0
RosettaNET	7	7	100,0
W3C	9	9	100,0
The Open Group	22	21	95,5

However, it should be noted that the quantitative analysis does not provide reliable results. For example, all of the OASIS and OMG main standardization topics are covered only by one of the projects analyzed, while the rest of them covers only a few of the topics. ERTICO covers a very focused area of intelligent transport systems and services, it is thus natural that this kind of analysis is not relevant.

On the other hand, the big and broadly scoped standardization bodies, like CEN/ISS, CENELEC and ETSI, with any standardization areas, seem to be well covered by the work identified by the projects. The same is valid for W3C and The Open Group, even if their scope is more limited with respect to the former three ones. As far as W3C is concerned, this is evident in particular for Call 2 projects since there are several Strategic Objectives that are directly related to the W3C main standardization areas (Embedded systems, Cross-media content, GRID-based systems, e-Inclusion).

As far as concerns the CEN/ISSS, it can be stated that almost all the areas of interest are covered by the topics the research projects intend to address. There are only two areas that are not covered at all (Bar coding and Automatic control), however, this is natural since none of them is not among the FP6 Call 1&2 Strategic Objectives.

Within the CENELEC, especially four areas of interest are covered by the research projects, namely Electrotechnical aspects of telecommunication equipment, Equipment for people with special needs and Intelligent transport.

3GPP issues are well covered by projects, this corresponds to two Strategic Objectives (Strategic Objective 2.3.1.4 Mobile and wireless systems beyond 3G in Call 1 and Strategic 2.3.2.6 Applications and services for the mobile user and worker in Call 2).

In ETSI, the following areas of interest are covered in particular: Access and terminals, Broadband access networks, Next Generation Networks, Electronic signatures, Smart cards and security algorithms and Satellite systems. Surprisingly, no project has been identified that would cover Broadcast issues and Emergency communications aspects, although they can be considered as relevant to several Strategic Objectives in Call 1 and 2 (e.g., 2.3.1.3 Broadband for all, 2.3.1.10 eSafety of road and air transport, 2.3.1.11 eHealth in Call 1, or 2.3.2.9 Improving risk management in Call 2).



## D18 – COPRAS reverse mapping report

As a general conclusion, it can be stated that the areas of interest of the ICTBS members are quite considerably covered by the research projects. It should also be stated that industry consortia, contrary to the traditional SDOs, are generally more focused on specific topics, which naturally corresponds to the distribution of the issues addressed by the projects, among these consortia.

As FP6 IST Call 1 covers the more ‘traditional’ standardization issues and areas, projects in this Call are also addressing the “traditional” SDOs areas of interest to a relatively larger extend when compared to Call 2 covering relatively new research topics, like Open development platforms for software and services, Cognitive systems, Embedded systems and Grid systems, which is why projects in this second call are also addressing industry consortia topics (W3C, OMG, OASIS, RosettaNET) rather than standards bodies to a relatively larger extend.

From the Strategic Objectives point of view, one of them – 2.3.2.9 (Improving risk management), seems not to be covered by any of the analyzed standardization bodies.

Finally, it should be underlined that the analysis provided in this Deliverable focuses on the ICTSB members, meaning it covers the European standardization organizations and their areas of interest. It should however be mentioned that many of the projects in Calls 1 and 2 interface directly with organizations operating on a worldwide level, such as ITU, IETF, IEEE, ISO\_IEC, and OSGi.