

EU Study on the specific policy needs for ICT standardisation

Final report



Brussels, July 2007

Notice: This publication was prepared for the European Commission. The views expressed are those of the authors and do not necessarily express the views of the European Commission.

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PART I. Introduction

1. Study Objective

This is the Study on the specific policy needs for ICT Standardisation (ENTR/05/59). The Study was prepared by a multidisciplinary consortium formed by a law firm and two universities. The study team consisted of Dr. Patrick Van Eecke (DLA Piper), Dr. Paulo Pinto (Universidade Nova de Lisboa) and Dr. Tineke Egyedi (T.U. Delft).

The European Commission has expressed its wishes to use standardisation as a policy tool for encouraging the competitiveness of European Industry, whilst taking global developments in the ICT sector into account. More specifically, the European Commission wishes to rely upon a European ICT standardisation system capable of responding to industrial and societal stakeholders' expectations. Further, ICT standardisation should be a tool able to support and complement various related European policies such as the Competitiveness policy set by the Lisbon agenda, Industrial policy, the Health policy, eLearning, eAccessibility etc.

For this reason, the objective of the Study is to provide a thorough analysis of current European ICT standardisation policy and to bring forward recommendations for its future development.

More specifically, the Study:

1. Provides a thorough analysis of the present characteristics of the ICT standardisation landscape, and the expected developments within this field over the next 10 years.
2. Identifies, in the future ICT landscape, the new requirements to be addressed by standardisation policy, in order to strengthen the competitiveness of the EU industry, while also responding to stakeholders' needs as well as societal and market requirements;
3. Explores the alternatives for a standardisation system, based on the complementarity of the policy formulated by the public actors and the operational structures established by the private sector;
4. Assesses the current EU ICT standardisation policy and its legal framework with a view to accommodating these new requirements, specified above;
5. Elaborates on the alternatives for the future EU ICT standardisation policy and its integration to other EU policies (notably research and innovation) from the point of view of the requirements, specified above;
6. Distinguishes the specific standardisation policy measures and their legal requirements, available to be implemented within the future EU ICT standardisation system;
7. Analyses how public authorities could more efficiently use standards in support of EU policies and legislation;
8. Identifies policy measures to better promote the results of the EU standardisation system and to increase their impact on a global level; and
9. Provides recommendations for future policy actions in the field of EU ICT standardisation.

2. Background

EU policy makers are of the opinion that the EU standards-setting policy, in its present structure and organisation, cannot adequately satisfy the requirements of a market that is subject to rapid technology developments and a multitude of standards-setting initiatives driven by industrial specification providers, (consortia and fora). These doubts find their basis in *legal, policy and market-related* concerns as expressed in a number of recent policy documents stemming from the EU institutions.

From a legal perspective, doubts have been expressed over whether the regulatory framework underpinning the standardisation policy in Europe today is still sufficient to cover the new role entrusted to EU standards-setting procedures (especially, their role as “supportive mechanisms” of the EU policy and legislation in general)^[1]. From a *policy* perspective, new measures need to be identified in order to make EU standardisation policy and its system “more participatory and credible” to EU market players and “more competitive” at an international level. From a *technical* perspective, the ICT standards-setting philosophy, must target efficient and real-time implementations in order to offer constructive support to other policies and to encourage R&D investment.

Against this backdrop, the Commission has expressed its view that there is an “enormous potential” for improving the European standardisation system. Further, it has stressed that (in the ICT sector), the Commission “will seek to initiate a strategic review”, together with Member States and stakeholders, “that would target how all players involved in standardisation could better match the challenges responding to societal and market needs, thus providing efficiently elaborated specifications in the IT sector”^[2]. Also the EU Council, in its conclusions of 2004, invokes the “need for optimisation” of the EU standardisation system^[3].

This Study comes as a follow-up to the issues outlined above. Its first aim is to identify *what works well and what does not* in EU ICT standards setting. Beyond that, it identifies some concrete measures for improving the current standardisation procedures in order to make them respond to the challenges of globalisation.

3. Methodology

This study has been prepared by a multidisciplinary project team consisting of experts with a legal, engineering and policy background. When preparing this report the project team combined desktop research with field research.

In addition, the project team gathered considerably feedback from interested participants. The feedback was collected through different channels, such as questionnaires and an interactive website. More input was received, from position papers and from, standardisation-related experts.

Furthermore, the project team was supported by a Steering Committee consisting of representatives from parties involved in the standardisation process, and by so-called “working group” meetings to discuss specific topics. The Annexes to this report contain the materials gathered throughout the study.

¹ Commission Staff Working Document, *The Challenges for European Standardisation*, p. 9.

² Commission Communication on the role of European Standardisation in the framework of European policies and legislation, COM (2004) 674 final, p. 9.

³ Conclusions of the Council of 17 December 2004, p. 7.

4. Terminology

Common understanding – Ensuring a common understanding of the facts and the issues involved starts with a common understanding of the terminology used. Standardisation policy is a broad spectrum and many terms are used having different connotations. For the sake of clarity, the project team consistently chose to use the following terms in the following meaning. Given that the study begins with an analysis of the current legal framework, the terminology of the Directive 98/34 and its definitions have been used as a starting point.

The participants

- **Participant(s)**: when the word ‘participant’ or ‘participants’ is used in this study, it refers to all those involved in the standardisation process (such as stakeholders, consortia, fora, policy makers, ESOs, etc.)
- **Stakeholder**: refers to those who are not directly involved in the standards setting process itself but have an interest in the results of standardisation efforts. A distinction can be made between public interest stakeholders (consumers, SMEs, environment, etc) and industry stakeholder (large industries).
- **Standard Development Organisation (SDO)**: Organisations defining standards having established specific rules for their development and approval. These rules can either follow internationally recognized procedures (consensus, openness, etc.) or be the result of an established process over the years. Furthermore, these organisations have attained a relevant recognition over the years and could be considered mature organisations. Their fields of work have enlarged with time and form well established and reasonable wide parts of the technical reality today.
- **Formal SDOs**: International Standardisation Bodies, European Standardisation Bodies, and similar entities from other world regions or countries.
- **Non-formal SDOs**: SDOs from the private sector (IETF, IEEE, ECMA International, OMA, etc.)
- **Specification providers**: organisations (mostly industrial, with input also from academia) that define standards for a short range of technical issues. Most of the time, these organisations are rather young and are at a stage of being globally established. A natural evolution would be for them to become non formal SDOs, gaining world-wide recognition as the narrow standardisation subjects covered begin to grow in importance (OASIS, W3C, etc.).
- **Consortia or fora**: cover non formal SDOs and specification providers, used in places where it is not so relevant to distinguish between these two classes.
- **International Standardisation Body**: Internationally established organisations (ISO, IEC, etc.) established through multi-lateral agreements.
- **European Standardisation body (or European Standardisation Organisation (ESB or ESO))**: The three formally-recognised standardisation bodies in Europe: CEN, CENELEC and ETSI. as referred to in Annex I of directive 98/34;
- **National Standards Setting Body (NSB)**: Formally appointed national standards setting organisation, established in the EU Member States, as referred to in Annex II of directive 98/34.

Standards and technical specifications

- **Technical specification (or specification)**: a specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards the name under which the product is

sold, terminology, symbols, testing and test methods, packaging, marking or labelling and conformity assessment procedures.

- **Standard:** a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not compulsory and which is one of the following: international standard, European standard, national standard.
- **International standard:** a standard adopted by an international standardisation organisation and made available to the public.
- **European standard:** a standard adopted by a European Standardisation Body and made available to the public.
- **European Norm (EN):** A standard developed by a European Standardisation Body on the basis of the New Approach.
- **National standard:** a standard adopted by a National Standardisation Body and made available to the public.
- **Standards programme:** a work programme of a recognised standardisation body listing the subjects on which standardisation work is being carried out.

Policy related terms

- **EU Policy(-ies):** a set of common policy objectives that the EU is seeking to attain, subject to change. (e. g. ensuring competitiveness, the creation of an internal market, ensuring products meeting safety & security requirements). Alongside other instruments, such as drafting legislation, funding projects or educational activities, Standardisation can be used as a tool for reaching these policy objectives,.
- **Standardisation policy:** The policy relating to the use of standardisation as a tool for reaching EU policy objectives as defined by the EU policy (e. g. by obliging the use of standards in public procurement, by funding standardisation initiatives, by creating a standardisation system, by leaving standardisation drafting and adoption up to the market).
- **Standardisation system:** The operational/organisational structure of standards-setting activities in the European Union. It is the well-defined set of rules and procedures the EU has in place for fulfilling the formalised part of its standardisation policy.

Definition of a standard – No agreed definition of a “standard” exists for the present. Definitions can be found in public policy documents, legal texts and normative documents adopted by standards setting organisations.

At an EU level, standards are described in a number of Community legal acts, although not in a totally uniform way^[4]. However, European definitions of a standard, by and large, reflect the intrinsic characteristics of a standard as found in international standardisation organisations, such as ISO. Accordingly, the European Norm EN 45020 employs the ISO definition: “a document established by consensus and approved by a recognised body that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.”^[5]

A less technical description of a standard has been given by NORMAPME as “A standard is an agreement

⁴ Amongst these acts: EC Directive 98/34/EC, art. 1; Council Decision 87/95/EEC, art. 1(3); Annex III of Directive 93/36/EEC.

⁵ EN 45020:1998 ‘Standardization and related activities - General vocabulary’ (ISO/IEC Guide 2:1996

between the parties involved, such as manufacturers, sellers, purchasers, users and regulators of a particular product, process or service. It contains a technical specification or other precise criteria designed to be used consistently as a rule, guideline, or definition. Its adoption ensures to all operators a clear reference in terms of technical specifications, quality, performance and reliability. Its objective is to ensure that products and services are suitable for their purpose and they are comparable and compatible. Standards are a summary of best practice. Their creation arises from the experience and expertise of all interested parties and they are drawn up to meet the demands of society and technology. Any standard is the result of a collective work that involves national standardisation bodies, producers, users, research organisations, and consumers.”^[6]

Different types of standards and different taxonomies – Within a standardisation context, different types of standards exist such as communication standards, application standards, testing standards, product standards and management standards. Several taxonomies exist trying to classify the diversity on standards in a logical order.^[7]

The participants – Within a standardisation context many actors are involved. Throughout this study, we call all actors together ‘participants’. The table at the right gives an overview of the participants involved and their respective roles.

⁶ <http://www.normapme.com>

⁷ This study will not discuss the different taxonomies, their advantages or disadvantages. For more information on this topic, see e.g. De Vries, H.J., (2006). IT Standards Typology. In: Jakobs, K. (Ed.). Advanced Topics in Information Technology Standards and Standardization Research, Vol. 1, pp.1-26.

PARTICIPANTS				
Standard Development Organisations		Specification providers	Stakeholders	Policy Makers (Public authorities)
Formal SDOs	International Standardisation bodies	Consortia (fora)	Public interest stakeholders	International policy makers
	European Standardisation Organisations			Solution providers
	National Standardisation Bodies			Solution users
Non-formal SDOs	ISO, ...	Oasis, W3C, etc	Industry stakeholders	UN, etc
	CEN, Cenelec, ETSI			EICTA, BSA, etc
	AFNOR, DIN etc.			CEFC, COCIR, etc
	IETF, IEEE, etc			EU, US, China
				EU Member States

PART II. The EU ICT standardisation landscape

1. The ICT landscape: current status and trends

1.1 Current status

The current ICT landscape has been formed by a fast growing rate of activity in the past decades. The stable computing islands of computing that marked the late 1980s have been changed into a worldwide environment, fast paced and completely heterogeneous^[8]. End-users are offered a variety of choice between ICT solutions with different performance records, costs, interoperability or convergence capabilities and varying technical or operational security.

ICT already contributes significantly to European and world-wide GDP. This contribution comes from products and services based on hardware and software in areas of Information Technology and Telecommunications: computers, communication equipment, general IT equipment, electronics and components, software, IT services and telecommunication services^[9].

Nowadays, the typical characteristics of the ICT sector are:

Focus on software – We have been witnessing a move away from hardware to software resulting in a faster sequence of new updates and a greater problem on the control of the overall behaviour of the system/device that previously was guaranteed through certification. With the move to software certification, for example, must handle the functionality of the equipment whereas before the focus was on electrical compliance.^[10]

Distributed networks – Access to information, that until quite recently was stored in one physical place and which still reflects the usual way of working, is changing to instant information access that can be downloaded anywhere and from different locations. The ICT sector was (and to a certain extent still is) centred in local process of information due to the existence of the Personal Computer (PC) and the general acceptance of an operating system and desktop applications, but it is gradually moving to distributed cooperating applications over the network.

Horizontal impact – ICT has become a horizontal discipline applied to almost every sector of the economy. The increase in use of ICT is not only due to technological developments but also mainly because of the broader scope where ICT can be applied.

Convergence – Convergence is a trend whereby some technologies, having distinct functionalities, evolve into technologies that overlap, i.e. multiple products come together to form one product, with the advantage

⁸ As stated in *Standardisation: a failing paradigm*, article of Carl Cargill and Sherrie Bolin, delivered to Federal Reserve Bank of Chicago and to the Ministry of Information Industries (MII) in China. Same statements in Commission Communication on *the role of European standardisation in the framework of European policies and legislation*, COM (2004)674 final, p. 6.

⁹ Information and Communications Technologies, OECD Information Technology Outlook, OECD 2006

¹⁰ As a side note, it is noteworthy to refer that the certification “business” is also somehow lost in the transition because the network technology has become global and the national certification bodies have seen their importance and even usefulness diminish.

es of each initial component. We have especially been witnessing the merging of the Information Technology area with the Telecommunications area.

Liberalisation – The telecommunications sector, because of its converging activity currently being called the electronic communications sector, has also changed dramatically over the past years. Until the 1980s the electronic communications market was governed by national players typically having a monopoly position. The national operators had their own R&D structures, even production lines for products, and the certification entities in some European countries were very connected to the operators. Given the size of the networks, large investments in R&D were possible because the returns were more or less predictable. Each operator (especially in Europe) had a preferred equipment manufacturer as its main supplier.

Less stable market – Liberalisation waves in the sector changed the industry but also changed the ‘stable’ way this economy was working. Competition between operators lowered their profit margins and made any decisions on investing in R&D more difficult to facilitate. The R&D structures owned by each operator had to operate in global markets instead of developing features of their own networks.

1.2 The next decade

It is always difficult and risky to predict future trends, and in the ICT sector the task is even greater. The following sub-sections contain assumptions on the future and have been based on researching various study documents, published by the European bodies, the OECD and other organisations. These assumptions must be considered with caution!

1.2.1 Connected society and globalisation

Connected society – The rapid spread of broadband, wireless technology and other next-generation networks (such as optical fibre) have paved the way for the connected society, where people and devices are connected anywhere and anytime. The figures speak for themselves: at the end of 2005, OECD countries had 158 million broadband subscribers out of 271 million Internet subscribers^[11], meaning that almost every European home and enterprise will have access to broadband internet access^[12]. As for wifi, in January 2006 the worldwide number of hotspots already surpassed the 100,000 milestone, a growth of 87% compared to January 2005^[13].

Globalisation – In addition to being a prerequisite for ubiquitous networks and the changes in delivery models (see below), the connected society allows for true globalisation: interdependence, integration and interaction among people and companies in disparate locations, effectively giving rise to the increased delivery of outsourcing and off-shoring. With the help of the internet and low-cost infrastructure like Voice-Over-IP, outsourcing and offshoring have spread to core business services and are no longer restricted to manufacturing. The number of service jobs outsourced is expected to continue to rise, reaching 4.1 million by 2008^[14]. According to Gartner^[15], by 2015, 30 percent of traditional professional IT services jobs will be delivered from emerging, rather than developed, markets.

¹¹ OECD Information technology outlook 2006, page 185

¹² Information Society Technologies Advisory Group (ISTAG), “Shaping Europe’s Future Through ICT”, 2006, <ftp://ftp.cordis.europa.eu/pub/ist/docs/istag-shaping-europe-future-ict-march-2006-en.pdf>

¹³ “Worldwide Wi-Fi Hotspots Hits the 100,000 Mark”, <http://jiwire.com/press-100k-hotspots.htm>

¹⁴ McKinsey Global Institute 2005

¹⁵ David W. Cearley, Jackie Fenn, Daryl C. Plummer, “Gartner’s positions on the Five Hottest IT Topics and Trends in

1.2.2 New computing paradigms

SaaS and SOA – Having made the transition from host-based systems to client-server relationships and subsequently multitier IT architectures, software as a service (SaaS) and service-oriented architectures (SOA) are predicted to become the computing paradigms of the next decade. In a service oriented environment, computing resources are made available as independent services that can be accessed without knowledge of the underlying platform implementation. Software as a service is therefore characterized by so-called “loose coupling” of applications, replacing monolithic application architectures, so that business rules are being abstracted to improve the autonomy and reusability of the core items. Service oriented architectures are set to influence the development of enterprise IT systems over the coming years: by 2010, 80% of application software revenue growth will come from SOA-based products^[16].

Grid computing – At the hardware side, grid computing is expected to become the next logical evolution in enterprise IT infrastructure. By breaking down large data sets into many smaller ones and by performing several computations in parallel, grid computing takes advantage of many networked computers to solve large-scale computation problems. By thus building an IT infrastructure of granular components, new vistas of raw computer power arrive.

Virtualisation – The need for more computing power has also led to virtualisation technologies, whereby one single physical server hosts multiple software-created virtual servers. This way, the use of several under-utilized physical servers is avoided and server utilisation is significantly optimized. Together, grid computing and virtualisation allow computing to go beyond physical, isolated boxes.

Nanotechnology – the manufacturing of products smaller than 100 nanometres—also promises to revolutionize multiple industry sectors by developing new products such as paints, medicines, clothing, foodstuffs, packaging and aerospace. In the IT-sector, nanotechnology will pave the way for smaller and faster computers with larger memories than allowed by current micro-transistors, e.g. through soft lithography and self-assembly of nanoscale components. Nanotechnology is expected to represent a market of more than 1 trillion USD by 2015^[17].

1.2.3 Changes in delivery models and business models

Disintermediation and re-intermediation - The internet has changed traditional delivery methods, boosting both disintermediation and re-intermediation. Disintermediation occurs when companies deal directly with customers, effectively cutting out the middleman. Through the use of modern communication technologies, producers, publishers and vendors enter into direct contact with customers, irrespective of both parties' geographical location, while such contacts would in the past have occurred through various distribution models^[18]. This allows for diminished distribution costs. For example, upstart music bands now directly sell their music to their listeners; goods and services are sold directly through a variety of electronic auctions; innovative computer and software vendors sell directly to the end-user.

Re-intermediation, on the other hand, is the introduction of new intermediating parties in the value chain. Due to the overwhelming amount of relevant and irrelevant information and the sheer amount of potential counterparties, information searching and central information assembly (e.g. through web portals and search

2005”, http://gartner.com/resources/125800/125868/gartners_positi.pdf, page 5

¹⁶ David W. Cearley, Jackie Fenn, Daryl C. Plummer, *o.c.*, page 4

¹⁷ OECD (2004a), OECD Information Technology Outlook.

¹⁸ See M. HAMMER, “Out of the box: The Myth Of Disintermediation”, <http://informationweek.com/794/94uwmh.htm>

engines) have become important value added services. As quality of information, tailored to personal or business requirements, will become an important asset, re-intermediation may provide key values to customers.

New or changing roles - Even with these changes there are just a few new entrants in the value chain. What is happening is an adaptation of the old participants to the new roles. The role of the distributor, and in some cases the retailer, is being taken by publishers either directly or via Internet Service Providers (ISPs). ISPs are trying to get the portal business to replace the role of the distributor, industries are entering the content business. In general, many of the traditional participants remain important in the altered value chain. A notable exception is the retailer, and particularly the small retailer. Large physical retailers have often successfully expanded services to become online as well as offline intermediates (e.g. Virgin Megastores). Examples of changing to new roles are: ISPs, mobile operators, specialized content distribution portals (e.g. HighWire Press), and established firms in other sectors (Starbucks in music or Coca-Cola in games) which have entered in some digital content markets as new intermediaries. Re-intermediation involves different participants, and it also requires, for example, DRM and payment providers, content marketing, rights acquisition and management, advertising, billing management, and access management.

New business models - These changes on the traditional delivery models bring also new business models with them. New online-enabled revenue models include retail purchase, subscription fees, pay-per-play, advertising and new services including selling and/or renting digital objects and players. Currently, the most successful emerging model is the “pay monthly” subscription model (e.g. subscription-based access to premium casual games), but it is expected that a mixture of the models will succeed.^[19] One technical achievement is expected to produce significant changes in revenue models – the widespread use of micropayment systems for mass-market customers.

1.2.4 Commoditisation and consumerisation

Commoditisation - As an ongoing trend, information technology is seen as a commodity. Many technology segments are already commoditised. PCs – once large and expensive devices – have, for example, become commodities, where buyers essentially get the same “product” irrespective of the vendor. Due to the rise of the internet, which depends on shared protocols that define the interfaces and datatypes rather than the internals of those components, it is expected that commoditisation will also extend to software^[20].

Consumerisation - A related phenomenon is the consumerisation of IT, a trend whereby enterprise computing uses technologies that have roots in consumer applications. Compared to enterprises, consumers have quickly adopted to new technologies (e.g. wireless networking, blogging, Voice-Over-IP, instant messaging, use of smart phones and “Web 2.0” technologies) and keep better track of technology product cycles (e.g. updated versions of hardware and software). By comparison, enterprises tend to be slow to decide, slow to execute and slow to communicate.

Due to the greater involvement of consumers and end-users in the creation and distribution of digital content (see below – *Involvement of end-users*) it can be expected that the adoption of new technologies will further develop, so that consumerisation will flow in even faster cycles in the future, as new and easier communication technologies will allow for an ever quicker adoption of new technologies.

¹⁹ Information and Communications Technologies, OECD Information Technology Outlook, OECD 2006, page 188.

²⁰ Tim O’Reilly, “Tim O’Reilly in a Nutshell”, http://oreilly.de/oreilly/oreilly_inanutshell.pdf, page 21

1.2.5 Convergence and integration

Convergence – In the area of information technology, convergence is usually used to designate multi-functionality, as the telephone, display screen, computer, internet access, and video camera all merge into a single device^[21].

While a lot has been written about convergence – in particular convergence of television and computers – it seems to finally have taken off. Over the last years, personal video websites have appeared, interactive television (idTV) has been distributed to consumers, large film studios have released on-line movie distribution plans, traditional TV stations have started to broadcast programmes over the internet, personal “videocasts” have been introduced, UMTS-enabled cell phones have gained TV capabilities and devices have appeared that allow customers to watch television programs remotely. Although a lot of improvements still have to occur, and it is yet to be seen whether internet-through-television will gain market share, significant steps have already been taken towards media convergence.

Integration – Integration and convergence is also visible in other areas. Modern mobile phones, for example, integrate telephone capabilities with voice / memo recording, playing music and listening to radio, scheduling appointments, taking and viewing photographs and videos and music, showing street maps, etc. Similar integration exists in portable computers and game consoles.

Through integration and convergence, the ICT-industry becomes part of a **borderless digital ecosystem**, whereby companies are increasingly defined by their role within the converged value chain (e.g. as developer, content provider, manufacturer or operator) rather than by traditional market segments^[22].

1.2.6 Focus on digital content

Driving force - Large infrastructural investments and technological improvements in network throughput and hardware capabilities have enabled the development of advanced digital content, such as digital books, music and videos. The internet allows new distribution (e.g. streaming radio) and financing possibilities (e.g. subscription- and advertisement-based) that will lower entry barriers for creation and distribution. Digital content is therefore already the driving force behind the knowledge economy, as a shift is taking place from the manufacturing of physical items to the manufacturing of intangible information.

Personalised content - Together with the shift in delivery models, digital content also allows for the creation of personalised content and services tailored to the needs of the individual user. Instead of selling high-value goods or content to large audiences, providers will, in future, gain profits from selling large quantities of personalized content or services to consumers. The challenge is to make this “long-tail”^[23] of niche and personalised content and services profitable.

Internet service providers, mobile operators and specialised content distributors are therefore becoming increasingly important, although a shift to user-centric (e.g. peer-to-peer) distribution and creation models may also occur. Estimates for digital content applications suggest that global interactive entertainment software sales will significantly rise between 2005 and 2010 (from USD 18 billion to USD 26 billion)^[24], and will represent more than half the total interactive entertainment market.

²¹ Alfred NORDMANN, “Converging Technologies – Shaping the Future of European Societies”, http://www.ntnu.no/2020/pdf/final_report_en.pdf, page 16

²² Information Society Technologies Advisory Group (ISTAG), *o.c.*, page 17

²³ C. ANDERSON, “The Long Tail”, 2004, <http://wired.com/wired/archive/12.10/tail.html>

²⁴ OECD 2006, *o.c.*, page 185

Diversity of contents – Computer games, an important part of today’s digital content, have already surpassed film box office ticket sales, and are expected to surpass total revenue figures of the recorded music industry^[25]. Interestingly, computer games are also used in areas other than entertainment (such as education and health) and have even given rise to alternative realities where land can be bought and services are delivered. Virtual reality is increasingly used in the entertainment industry in the form of ‘mixed-reality’ techniques that bridge the real world of scenes and actors with the flexible and limitless space of virtual reality where everything is possible^[26]. Digital music has already become a mainstream distribution channel and is currently the fastest growing channel for music. The same is expected for digital video. Finally, mobile content (from ringtones to video clips and wallpaper) is expected to be a major driver of growth.

Protection – Easy copying of digital information without any loss of quality has urged the need for copy protection schemes and digital rights management (DRM). Nevertheless, digital content markets require interoperable and compatible standards for content and hardware. Although incompatible digital rights management schemes and software and hardware currently reduce user possibilities, it is expected that political pressure and/or spontaneous market reactions will give rise to more uniform standards.

1.2.7 Involvement of end-users

Peer-to-peer networks – Individuals are becoming more and more involved in information technology, not only in their role of passive end users, but also in their role of active participant or information provider. The trend of end-user involvement has been booming with the advent of the internet, in particular since the rise of peer-to-peer networks. These peer-to-peer networks, while contested due to the often illegal nature of the files exchanged, are now also used for commercial and non-commercial content production and legal delivery^[27]. Videos, DVDs and large software packages will be distributed through such networks, shifting the burden of making content available from central servers to a grid of users helping each other downloading content.

Active participation – The involvement of end-users is also very clear under the participative “Web 2.0” paradigm^[28]. Web 2.0, being the purported successor of the “old” internet (version 1.0), refers to the active participation of Internet users in creating content, customising the Internet and developing applications for a broad variety of fields. This paradigm is characterized by the fact that users own and control the data social-networking aspects^[29].

In contrast with the “old” internet, where one party – typically the website administrator – would deliver information, users participate in and control Web 2.0 websites, such as social networking websites, virtual communities, video sharing websites, podcasts/videocasts and online collaboration tools. The mass availability of cheap and powerful cameras (often embedded in mobile phones) combined with easy editing software, allow consumers to easily create content and contribute to existing content.

Even when end-users are not contributing to community projects, they tend to create and distribute their

²⁵ OECD 2006, *o.c.*, page 186

²⁶ Information Society Technologies Advisory Group (ISTAG), *o.c.*, page 7

²⁷ S. PRENTICE, M. McGUIRE, “Don’t overlook legitimate uses of file-sharing technology”, http://gartner.com/DisplayDocument?ref=g_search&id=482048

²⁸ T. O’REILLY, “Design Patterns and Business Models for the Next Generation of Software”, 2005, <http://oreillynnet.com/pub/oreilly/tim/news/2005/09/30/what-is-web-20.html>

²⁹ See http://en.wikipedia.org/wiki/Web_2.0

digital creations. **Weblogs** (“blogs”), already surpassing sixty millions by mid-2006^[30], are one of the most popular forms of self-expression. In a related area, **citizen journalism**^[31] – whereby non-professional journalists contribute news stories, photos or videos – is also taking off, using inter alia weblogs to publish news facts. However, despite the sheer quantity of examples that indicate that user-generated content accounts for a respectable percentage of today’s digital content, the size and impact of these user-generated contributions are still unclear and it is yet to be seen how the participant digital economy will develop.

Collaborative working – Even when the question therefore remains whether (and to what extent) user-generated content can compete with professional content, it should be recognized that the new internet technologies made available under the Web 2.0 umbrella, in particular when combined with service oriented architectures, will change the way work is delivered. In future, collaborative working will certainly increase. For example, according to Gartner^[32], within ten years, 80% of the work performed by employees will be collaborative rather than people working alone.

Open source – Greater participation and involvement of end-users is also evident in the rise of open-source software. As is commonly known, this software is developed and owned by “the community”. While open source was initially mainly developed by volunteers, there is a continuing transition from volunteer to professional, as open source is used increasingly in companies that then become motivated to participate in its continued development^[33]. Consequently, the **open source** development model has also changed the software engineering model (see above – New computing paradigms).

As a result, open source software is now widely used in a variety of domains. Forrester Research estimates that at least 50% of companies it recently surveyed are using open source in some form^[34]. By 2008, 95% of Global 2000 organisations will have formal open-source acquisition and management strategies that address the challenges and opportunities of open source software^[35]. These results are not surprising, as already more than 50% of all domains on the internet are for example hosted by the Apache open source webserver^[36], and similar figures exist for email servers.

1.2.8 Smart objects and ambient intelligence

Ambient intelligence – Increased computing power, further miniaturisation and integration has brought computers and appliances into every human domain. In the concept of ambient intelligence, humans are surrounded by computing and networking technology that is unobtrusively embedded in their surroundings. This way, computers will be integrated into the environment, rather than being distinct objects. The emphasis is therefore put on user-friendliness, efficient and distributed services support, user empowerment, and support for human interactions^[37]. While being currently limited in quantity and functionality, it is hoped that ambient intelligence will enable people to interact with information-processing devices more naturally and casually than they currently do, and in whatever location or circumstance they find themselves.

³⁰ Estimate from Technorati blog search: <http://technorati.com/about>

³¹ J.D. LASICA, “What is Participatory Journalism?”, <http://ojr.org/ojr/workplace/1060217106.php>

³² Press release, http://www.gartner.com/press_releases/asset_152230_11.html

³³ B. PERENS, “The Emerging Economic Paradigm of Open Source”, <http://perens.com/Articles/Economic.html>

³⁴ For an overview of some examples, see M. RAND, “Open Source Invades the Enterprise”, 2001, page 1, <http://forbes.com/2005/11/01/bow051101011.html>

³⁵ David W. Cearley, Jackie Fenn, Daryl C. Plummer, *o.c.*, page 2

³⁶ Netcraft web server survey December 2006, http://news.netcraft.com/archives/web_server_survey.html

³⁷ Information Society Technologies Advisory Group (ISTAG), “Scenarios for Ambient Intelligence in 2010”, <ftp://ftp.cordis.lu/pub/ist/docs/istagscenarios2010.pdf>

Artificial intelligence – Natural interactions with computing devices are also supported by further research in artificial intelligence to automate tasks requiring intelligent behaviour. Artificial intelligence – while currently still perceived by most individuals as being science-fiction – is already used in numerous applications, such as speech recognition, optical character recognition, data mining, e-mail spam filtering (see below) and natural language processing. Other applications include computer games and human-computer interactions.

Ubiquitous networks – Ambient intelligence and artificial intelligence go hand in hand with ubiquitous networks, whereby networked, mobile, seamless embedded objects invisible to the user provide real-time tracking, storing and processing of information related to persons and objects. Together with other sensor technologies, Radio Frequency Identification (RFID) – tracking and tracing objects through the use of small tags applied to them – is an important way to achieve the further realization of ubiquitous networking, as it is expected to generate productivity, accuracy and speed benefits in supply chain management and asset allocation. RFID is consequently poised for growth, promising greater reliability and efficiency than traditional bar codes. In vital sectors such as medical appliances RFID tags will become an indispensable technique for identifying dangerous substances and detecting human errors. As current technical problems are slowly being overcome, it is estimated that the market will hit \$7 billion by 2008.^[38]

Location-based services – RFID tags and other computing devices have also led to location-based services, which follow the location of objects and users through a variety of position-determining technologies. The two most common current applications are navigation and asset tracking, although it is poised to give rise to an expanding market of new applications.

1.2.9 Security

Due to the increased reliance on information technology and digital content, the value of information has increased significantly. However, together with this shift in value assessment, comes the increased potential of damages due to lost, incomplete or damaged information and unauthorized access or distribution.

Information security – The IT-industry is therefore quickly becoming aware of the necessity of information security, which not only needs to cover the information itself, but all associated software, hardware and infrastructure that facilitate its use. Information security will not only need to protect computers against well-known threats (such as computer viruses, worms and trojan horses), but also against newer threats such as botnets and spyware, which may prove to be even more harmful. The growth in malicious software has made the information security industry grow 13.6% in 2005, with revenue totalling \$4 billion and further double-digit growth predicted in the short term^[39]. As part of this growth, further reliance on technologies to improve authentication (such as biometry), is expected.

Spam – Increased information security is also associated with the increased need to effectively fight unsolicited emails (spam), which is the largest source of the aforementioned computer threats. Spam has increased by over 86% in 2006, largely due to the increased sophistication of botnets^[40]. It is estimated that about 90% of all emails sent every day, consist of spam. Newer and better technologies will need to be, and are currently being, developed in order to fight spam.

³⁸ “RFID Forecasts, Players & Opportunities 2005-2015”, IDTechEx.com, 2005.

³⁹ Gartner, “Market Share: Anti-virus (Enterprise and Consumer), Worldwide”, 2005

⁴⁰ Messagelabs Intelligence: 2006 Annual Security Report, page, http://messagelabs.com/publishedcontent/publish/threat_watch_dotcom_en/intelligence_reports/2006_annual_security_report, page 3

DRM – Information security also deals with limiting access to content. Advanced encryption and digital rights management (see above – *Focus on digital content*) will prevent unauthorized access. While new television sets and video players are already incorporating new types of DRM today, these technologies are expected to be further enhanced and applied to all kinds of digital content from digital music to e-books, videos and computer games. A JupiterResearch study's revenue projections call for the DRM-market to grow to \$274 million in revenue by 2008 ^[41].

Privacy – Finally, information security is also intrinsically associated with protecting the privacy of individuals. Ubiquitous computing, location-based services and increased use of computing devices in every sector threaten the privacy of each individual, as more and more information is being stored and processed. While privacy is still perceived as being of minor importance by most individuals, concerns in this area are growing. Finding the right balance between processing information and protecting individual users' privacy is therefore a challenge to be undertaken by the IT-industry, otherwise everyone's privacy is under threat. Modern technology allows everything to both be observed and recorded ^[42].

1.3 New challenges for ICT standardisation

Current and future developments in the ICT sector clearly impose challenges on the standardisation area. As seen above, the use and development of ICT has become a rapid, evolving, global and cross-sectoral matter. The ICT sector is becoming more and more focused on services, whilst at the same time becoming more ubiquitous, hence the term "the internet of things".. It would appear that the coming decade will follow a similar pattern.

The following trends may be identified as a challenge for efficiently policing standardisation efforts:

Pervasiveness of ICT – ICT has become a horizontal subject, significantly influencing several other businesses such as toys, construction, health, etc. As a consequence, the ICT standardisation community is in a constant change. In the ICT sector there is no stable (standardisation) community, the way it still exists in other more traditional sectors such as construction, machinery or pharmaceuticals. The pervasive nature of ICT requires ICT-related standardisation efforts to be taken in any possible economic area (from household instruments such as a fridge to business processes such as electronic invoicing) making it very difficult to delimit the scope of working areas and responsibilities.

Globalisation – Market globalisation has been boosted by the rapid expansion of ICT. Not only has the ICT sector opened new commercial opportunities for traditional industries (i.e., manufacturing, distance selling, revolutionary internal working) it has also developed into a strong indicator of national prosperity. ^[43] Rapid technological advances have helped expand the service sector and made it possible to provide ICT-enabled services from remote locations without the need for face-to-face contact or material products.

As far as standardisation is concerned, the global market requires the creation and implementation of standards that can be widely used without local or even regional restraints. As a result, the needs for regional

⁴¹ JupiterResearch, "Digital Rights Management for the Enterprise", <http://jupitermedia.com/corporate/releases/04.07.07-newjupresearch.html>

⁴² B. SCHEINER, "The Eternal Value of Privacy", Wired, 2006, <http://wired.com/news/columns/0,70886-0.html>

⁴³ ICT is an area with a high level of globalisation seen by the usual indicators: trade is generally growing faster than production, cross-border merges and acquisitions (M&As) are high, and export-oriented foreign direct investment (FDI) is very dynamic.

anchoring of standards has steadily decreased. Interoperable products and services become key in a world where these products and services are being used on a global, cross-border scale.

High pace of ICT development – ICT is subject to short life-cycles with even shorter exploitation records. Because of the high competitiveness in the sector, the need for upgrades becomes sometimes inevitable even before the product is put on the market. Migration and product evolution have become more popular to ICT manufacturers and product developers, to the detriment of product stability and long-term recognition.

Due to the fast pace of ICT product and service developments, combined with their short shelf life, the development of ICT standards needs to be much faster than currently is the case and faster than other sectors affected by the standardisation process.. Industry has not waited for the formal standardisation bodies to adapt their procedures. They have created their own consortia and fora, where they are not hindered by the public interest requirements of the formal standardisation bodies (waiting periods, involvement of public interest stakeholders, ...) allowing them to proceed much faster and more flexibly.. Consortia and fora are currently responsible for around 60% of the ICT standards produced today. Such a high percentage is not seen in any other economic sector.

Service oriented – Current and future ICT related industry is much more focused on the provision of services than on products. From a technological viewpoint, software has gradually gained ground over hardware solutions.

Standardisation efforts have traditionally been product oriented. It is a challenge for standardisation organisations to adapt their procedures and readjust their efforts towards the standardisation of services.

Shift to new countries – New countries are beginning to play a more relevant role in world terms (especially China, India and Korea). After a period of strong foreign investment in low-value manufactured products, home grown organisations are now beginning to emerge that produce high value products. The EU has recognised that *“Recently, the spectacular growth of other markets, particularly in Asia and Latin America, is pulling production, research and standardisation activities towards these regions.”*^[44]

In term of standards development, the entrance of new players from the Asian countries may indeed be expected. It is expected that they will enter the standardisation arena to push forward their products in the same way established industrial organisations from developed countries do nowadays. At global terms it is likely that they will join existing organisations, thereby increasing the number of players, instead of creating new ones. The usual standardisation organisations will soon have to include new partners and the consensus building processes will certainly evolve and become more complex.

More players – The ICT business is a fragmented market with aggressive competitors. Due to the technological developments (Internet, GSM, etc.) new and global equipment suppliers entered the market and gained importance. The number of entities participating in the setting up of the standards grew dramatically and so did the number of organizations. The great importance that ITU-T and CEPT (which later transformed into ETSI) had at those times is now spread over a greater number of organisations (for instance, IETF standardises issues for Internet, 3GPP for GSM, etc.). The range of participants has also grown (researchers from all around the world, developers from SMEs, consultants, etc.). Industry, in the past at least, did not participate in the technical consensus building.

Interoperability – Information technology has evolved from stand-alone or closed user systems to a mass-

⁴⁴ Commission Communication “Challenges for the European Information Society beyond 2005” COM(2004) 757 final, p. 9.

market product. The need for components to work together and, ultimately, to be embedded into more advanced technical solutions has never before been so crucial to the commercial success of a product.

Due to the high demand of interoperable products and services, standardisation activities have been set up on different levels

From a standardisation perspective, interoperability poses important challenges. Indeed, standardisation is increasingly regarded as an essential tool to foster interoperability. As yet though it is not capable of achieving network interconnection and service interoperability at an international level. Furthermore, achieving a sufficient level of interoperability at the network, device, service and/or application level is a complex matter involving various types of actions and various types of actors.

2. The current EU ICT standardisation policy and system

To remain effective, EU standardisation policy and system must respond to new realities: an enlarged Europe, the emergence of a global market for products and services, the rapid legitimacy gain of new technologies.

The following chapter describes the existing EU ICT standardisation policy and its system, and how it wishes to accommodate the challenges imposed by current and future ICT developments.

The chapter begins by describing how EU policy uses standardisation as a tool for reaching common policy objectives. It further describes the current standardisation system, with a special focus on the New Approach. The chapter then analyses how and to what extent the existing EU standardisation system has been tackling the specificities of the ICT sector. The chapter concludes with a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the current EU ICT standardisation system.

2.1 EU standardisation policy as basis for the EU standardisation system

2.1.1 EU standardisation policy

Serving EU policy objectives – The European Union has always been interested in the role of standardisation as a means to support related EU sectoral policies. Since the mid-1980s, especially, and the adoption of the New Approach model, EU policy has relied increasingly on the use of standards in support of its policies and legislation.

For example, standards serve the following policy objectives^[45]:

- Standards enhance the safety of products
- Standards encourage economies of scale
- Standards enable manufacturers to comply with European legislation
- Standards promote the interoperability of products and services
- Standards encourage greater competition
- Standards facilitate trade by diminishing trade barriers
- Standards promote ecological safety and sustainability

⁴⁵ CEN, Compass, European Standardisation in a nutshell, September 2004, p. 2.

- Standards safeguard the environment
- Standardisation reflects research and development
- Standardisation promotes common understanding

Standardisation as a policy tool – Broadly speaking EU policy seeks to use standardisation as a tool for reaching two main policy objectives. On the one hand the completion of the Internal Market and to support European competitiveness, ICT, public procurement, interoperability, environment, transport, energy, consumer protection, etc policies on the other.^[46]

The current EU standardisation landscape is characterised by the co-existence of those objectives. It is interesting to note that whilst the first objective is being accommodated by using a regulated approach, typically the New Approach model, the second objective is not necessarily being reached by using a regulated approach. Some policies have called for a regulated approach, such as consumer protection, others have not.

EU ICT standardisation policy – As far as the ICT sector is concerned, EU policy acknowledges that it plays an important role in reaching the EU's general objectives and especially that of the Lisbon Agenda.^[47] As a result, EU policy has developed different initiatives for promoting the use and development of ICT, such as encouraging innovation by investing in research and development and creating a sound legal framework that takes ICT concerns into account (Directive 1999/93 on electronic signatures, Directive 2000/31 on electronic commerce, Directive 2000/46 on electronic money, Directive 2002/21 on a common regulatory framework, etc.).

Different initiatives have been undertaken to promote ICT standardisation efforts. As will be noted below, EU decision makers regard standardisation as key to achieving the Lisbon objectives. These ICT-standardisation related initiatives, can be defined as the EU ICT's standardisation policy. The key question that needs to be addressed is to what extent this ICT standardisation policy is still capable of dealing with the new challenges imposed by the current and future ICT landscape. This question will be dealt with in the following section.

2.1.2 Current EU ICT standardisation policy

Lisbon Agenda – Current EU ICT standardisation policy is heavily influenced by the Lisbon Agenda created in March 2000. EU political leaders have set a new goal for the European Union, to be reached within a period of 10 years. This agenda wants to make the European Union “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable growth with more and better jobs and greater social cohesion.” The ‘Lisbon strategy’ covers such matters as research, education, training, Internet access and e-business. It also covers the reform of Europe's social protection systems, which must be made sustainable so that their benefits can be enjoyed by future generations.^[48]

i2010 – With the re-launch of the Lisbon Strategy in early 2005, the European Commission decided to start a new initiative aimed at boosting competitiveness in the ICT sector.^[49] The new programme i2010 (or Eu-

⁴⁶ See the statement made on http://ec.europa.eu/enterprise/standards_policy/index_en.htm

⁴⁷ See below.

⁴⁸ See http://ec.europa.eu/growthandjobs/key/index_en.htm

⁴⁹ Communication “i2010 – A European Information Society for growth and employment”

European Information Society 2010) intends to create an internal market for electronic communications and digital services and make the European Information Society as inclusive and accessible as possible^[50].

Standardisation is being regarded as an integral part of the EU to achieve the Lisbon goals “*by carrying out better regulation and by simplifying legislation, by increasing competitiveness of enterprises and by removing barriers of trade at international level.*”^[51]

It is interesting to note that the Commission in its Communication “Challenges for the European Information Society beyond 2005” annexed to the i2010 programme, referred specifically to the use of standards as a tool for ensuring ICT interoperability. In this respect, the Commission explicitly mentioned the important role that the European Standardisation Organisations CEN, CENELEC and ETSI need to play in this area, without forgetting the input of the **stakeholders**. Also interesting to note is that the Commission explicitly mentioned the introduction of open standards in areas having particular public policy relevance^[52].

Related policy documents – Different policy papers were produced by the EU institutions supporting the idea of standardisation as a policy tool for achieving the Lisbon goals of 2000 and 2005:

- Council Resolution of October 1999 on “the Role of Standardisation in Europe” and the Council Conclusions of March 2002 in which the Council acknowledged the important role of standards and invited the Commission to analyse the current situation of European standardisation and to respond to the challenges the European standards system is faced with.
- The Commission response to these Council initiatives in 2004: on 18 October 2004, the Commission adopted a Communication on “the Role of European Standardisation in the Framework of European Policies and Legislation” accompanied by a staff working paper dealing with “The challenges for European Standardisation”. Both documents analyse the current situation of European standardisation and identify the key areas where the European standardisation system and the instruments available to European standardisation policy can and should be further improved.
- The Council Conclusions of December 2004 on “European Standardisation”, in which the Council acknowledged the Commission’s findings and invited the Commission to pursue the activities proposed in the Communication and in the staff working paper.
- The 2006 “Action plan for European Standardisation”, developed by the Commission in conjunction with European Free Trade Association (EFTA), the European Standards Organisations (ESOs) and National Standards Bodies (NSBs), the Member States and stakeholders. The Action Plan reflects in operational terms the Commission’s Communication and the Council Conclusions and must be considered in liaison with these two documents. It outlines the most important actions to be performed and identifies the key players for every action. It is not, however, exhaustive.
- The 2006 “ICT Standardisation Work Programme”, of 16 March 2006, developed by Directorate General Enterprise and Industry, further complementing the 2006 Action Plan.

In its 2004 Commission Staff working document, the Commission expressed doubts about whether the current regulatory framework underpinning the standardisation policy in Europe is still sufficient to cover the new role entrusted to EU standards-setting procedures (especially, their role as “supportive mechanisms” of

⁵⁰ For more details on the eEurope 2005 Action Plan: see http://europa.eu.int/information_society/eeurope/2005/index_en.htm and http://europa.eu.int/information_society/eeurope/2005/doc/all_about/com_eeurope_en.doc

⁵¹ Commission Communication on the role of European Standardisation in the framework of European policies and legislation, COM (2004) 674 final, p. 2

⁵² Commission Communication “Challenges for the European Information Society beyond 2005” COM(2004) 757 final, p. 10.

the EU policy and legislation in general)^[53]. From a policy perspective, new measures need to be identified to set the EU standardisation policy and to make its system *more participatory* and *credible* to the EU market as well as *more competitive* at an international level. From a technical point of view, the standards-setting philosophy in the ICT sector must target efficient and real-time implementations in order to offer a constructive support to other policies and to encourage investment in the R&D area.

Against these requirements, the Commission expressed that “*there is an enormous potential for the improvement of the European standardisation system*”. Along the same lines, it stressed that “(in the ICT sector), *the Commission will seek to initiate a strategic review, together with Member States and stakeholders, that would target how all players involved in standardisation could better match the challenges responding to societal and market needs, thus providing efficiently elaborated specifications in the IT sector*”^[54]. On the other hand, in its conclusions of 2004, the EU Council invokes the “*need for optimisation of the EU standardisation system*”^[55].

2006 Action Plan – In the 2006 Action plan, the authors reiterate that standardisation is necessary to pursue the implementation of E-Europe and i2010. The main areas include e-government and modern online public services, secure information infrastructure, e-health, e-learning, interoperability platforms, broadband access at competitive prices, e-inclusion^[56].

Importantly, the Action Plan also confirms the basic principles of standardisation as “[...] a voluntary, consensus-based, market driven activity”. The Action Plan also refers to the important role of the stakeholders in the European standardisation efforts: “Standardisation is carried out by a number of stakeholders (manufacturers, service providers, users, authorities) who reconcile their positions. Thus the main influence and input on the work in the ESOs must originate from the stakeholders.”^[57]

2006 Work Programme – The 2006 Action Plan is complemented by a 2006 ICT Standardisation Work Programme. One of the prime objectives of this Work Programme is to further promote the use of ICT standards in support of EU policies and legislation as set out in the 2004 Commission Communication mentioned above.^[58] The 2006 ICT Work Programme extends its coverage to new legal and policy domains which have recently emerged and not yet addressed. It is important that priority be given to standardisation actions that seek to ensure interoperability, the uptake of ICT technology in key areas (e.g. e-business, e-health, etc.), and accessibility.

The documents also identify the different actors (Directorates-General, ESOs) involved in taking up the actions. The proposed actions, especially the ones identified in the Work Programme, are very much in line with some of the challenges that have been identified, such as the uptake of new technologies (e.g. NGN and Grid computing) and the need to support European policy domains outside of the New Approach (e.g. eInclusion, eHealth).

One ICT standardisation policy? – Based on the above, it may appear that one consistent EU ICT standardisation policy exists. In reality, however, this is not the case. As a result of unique ICT characteristics (global,

⁵³ Commission Staff Working Document, *The Challenges for European Standardisation*, p. 9.

⁵⁴ Commission Communication on the role of European Standardisation in the framework of European policies and legislation, COM (2004) 674 final, p. 9.

⁵⁵ Conclusions of the Council of 17 December 2004, p. 7. (see also http://europa.eu.int/comm/enterprise/standards_policy/role_of_standardisation/doc/council_ccl_en.pdf).

⁵⁶ Action plan 2006, p.9

⁵⁷ Action Plan 2006, p. 3-4

⁵⁸ European Commission (Enterprise and Industry Directorate-General), 2006 ICT Standardisation Work Programme, 14 p.

pervasive, new players, time demands, etc. ...), over the years different steps have been undertaken by different players (ESOs, EC directorates general) to encompass the ever changing needs of the ICT sector without paying attention to a long term strategy: ad hoc initiatives have been taken to react to immediate concerns without ensuring a long term approach and a proper embedment in the existing standardisation legal framework and relating policy.

Initiatives for structuring the different actions along the lines of a long term policy vision, such as the recent 2006 Action Plan for European Standardisation and the related 2006 ICT Standardisation Work Programme, do indeed fulfil a streamlining function. Nevertheless, we are of the opinion that these documents remain focussed on collecting and structuring the different standardisation efforts, and do not cover some open issues, such as the debate on a structured inclusion of standardisation participants other than ESOs into the standardisation work or the debate on the difference in the legal value of the standardisation deliverables.

2.1.3 The current EU standardisation system

One of the tools used by EU policy to reach its standardisation policy objectives is the establishment of a standardisation system. A standardisation system is a well structured set of procedures, organizations and deliverables being put in place for developing standards.

Need for European layer – Since the 1970s, the EU has established a standardisation system based on a cooperating with professional standards bodies. The public interest argument is one of the reasons why a European standardisation system was founded, alongside the existing global as well as national standardisation systems. The reason for a European layer is precisely to safeguard European cultural, linguistic and regulatory needs, and to ensure that European end-user requirements, especially those of SME's and public administrations are fed into global standards.

Voluntary basis and public interest – The European standardisation system is based on a set of principles and procedures that enable economic participants (industry, SMEs, consumers or professional bodies, NGOs, public interest organisations, governmental authorities, etc.) to establish and agree upon important product, service and processes criteria. These criteria have been embodied into European standards. Significantly, the development of standards within the European standardisation system is a voluntary activity by and for the parties interested in drawing up common standards and technical specifications in response to their needs^[59]. In its 1992 Resolution, the Council recognised that European standardisation, while organised on a voluntary basis, also serves the public interest.^[60]

New Approach – Current European standardisation policy, including that of the ICT sector, is framed by Council Directive 98/34. In the European arena, the main element of this policy is the formal recognition of three European Standards Organisations, CEN, CENELEC and ETSI, all three of which are active, to varying degrees, in the ICT sector. This recognition entails an institutional and financial support at the European level, aiming at improvements in responsiveness, efficiency and visibility and at providing the possibility for the Commission to financially support specific standardisation activities in support of EU legislation or policies.

⁵⁹ Report from the Commission to the Council and the European Parliament of 26 September 2001 on *Actions taken following the resolutions on European standardisation* adopted by the Council and the European Parliament in 1999.

⁶⁰ Council Resolution of 18 June 1992 on *the Role of European Standardisation in the European Economy*, OJ 1992 C 173/1, recital 8

2.1.4 EU standardisation system principles

Basic principles - The EU standardisation system is based on the basic principles of “transparency, openness, consensus, independence of vested interests, efficiency and decision-taking on the basis of national representations”^[61]. Together, these principles relate to the more general principle of accountability. The organisation and decision-taking process of the European standardisation today is actually enshrined in these basic principles:

- **Open and transparent working platforms:** anyone who has an interest in, or who will be affected by a standard should be able to contribute to its development. The groups formed to work on a standard should be representative and inclusive. Working tools should favour participants’ representation and working procedures and documents must be publicly available. Dissenting opinions must be heard and all interested communities must, in principle, be given the opportunity to express their views within a reasonable period of time. Stakeholders representing societal interests (or, otherwise, the public interest), such as consumer, health, environmental and safety organisations, reinforces the quality of consensus and makes the standards more representative.
- **Interested parties:** For most sectors, EU standardisation is market-driven and a self-funded activity. Proposals for new standards projects may be made by the constituencies of the standardisation organisations, by international organisations or by European trade, professional, technical or scientific organisations. Constituencies are practically asked to provide all competent experts from the specific areas affected by the standards-setting proposals and to give all parties concerned the opportunity to take part in the standardisation process. The importance of participation of the communities representing public interest objectives has been highlighted above. Draft standards are made available at national level for public comment before approval.
- **Neutral and independent standards organisations:** Three formal standards-setting organisations, CEN, CENELEC and ETSI, have been recognised by law (Annex I of Directive 98/34) to partner with the Community.
- **An adoption mechanism based on consensus:** decisions concerning the approval of standards for publication must be reached on the basis of evidence of consensus amongst the concerned parties. In practical terms, consensus is sometimes measured against the absence of sustained objection from major parties^[62]. Consensus as meant in the standardisation decision-making mostly reflects “a general agreement, characterised by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments”^[63].
- **Voluntary implementation:** in principal, standards are not mandatory and no market player shall be enforced to implement them as a sole means to prove compliance with legal requirements. There are

⁶¹ Council Resolution of 18 June 1992 on *the Role of European Standardisation in the European Economy*, OJ 1992 C 173/1, recital 8 and 9. These principles are reiterated in the Council’s Resolution of 1999 on the role of standardisation in Europe. This Resolution indeed confirmed that “standardisation is a voluntary, consensus-driven activity, carried out by and for the interested parties themselves, based on openness and transparency, within independent and organised standards organisations, leading to the adoption of standards, compliance with which is voluntary”. See Council Resolution of 28 October 1999 on the role of standardisation in Europe, OJ 2000, C141/1, recital 11.

⁶² As expressed in Commission’s report on the Efficiency and Accountability in European Standardisation under the New Approach, COM (1998) 291final, p. 9.

⁶³ This definition of consensus is provided in EN 45020:1993, n°. 1.7., reference in *Legal aspects of standardisation in the Member States of the EC and EFTA*, vol. 1, Harm Schepel, Josef Falke, European Communities 2000, p. 19, footnote 107.

certain exceptions to this rule: standards become compulsory if specific legislation refers to them as obligatory.

WTO principles – European principles are similar to those set out in the WTO Agreement on Technical Barriers to Trade (TBT-agreement).^[64] The rules and the guiding principles of the standardisation process specified in this agreement also cover the ICT sector. A Code of Good Practice for the Preparation, Adoption and Application of Standards by standardising bodies, which is open to acceptance by private sector bodies as well as the public sector, is included as an annex to the agreement.^[65]

Six essential elements for international standards-setting work are defined in Annex 4 of the TBT Agreement, namely^[66]:

- **Transparency:** all essential information about work programmes, proposals of standards or other deliverables, and their final results shall be made easily accessible.
- **Openness:** Membership to international standardisation work should be open on a non-discriminatory basis and in relation to all stages of standards development, from proposals of standardisation work to voting and adoption of standards. The opportunities to participate shall be meaningful.
- **Impartiality and consensus:** The standardisation procedure shall not be conducted in such a way so as to award a special privilege to a particular supplier, country or region.
- **Effectiveness and relevance:** International standards need to be relevant and to respond effectively to regulatory and market needs, as well as scientific and technological developments. The relevance implies the obligation of having the standards revised.
- **Coherence:** Signatories shall avoid duplication of, or overlap with, the standardisation work of other international standardising bodies. In this respect, it is essential to establish co-operation between relevant regional or national parties.
- **Development dimension:** Developing countries should not be excluded from the process because of lack of resources.

The principles adopted in relation with the WTO TBT are in line with Europe's thinking on international standards, and they are consistent with the basic principles respected by the European standards bodies and their national members.^[67]

2.2 New Approach: basis of the EU standardisation system

New Approach – It has now been nearly two decades since the “New Approach” system was first adopted by the EU allowing for harmonised EU standardisation. The New Approach represents a turning point in the

⁶⁴ Code of Good Practice for the Preparation, Adoption and Application of Standards, Annex 3 to WTO Agreement. The Agreement on Technical Barriers to Trade - also known as the TBT Agreement is an international treaty of the World Trade Organization. It was negotiated during the Uruguay Round of the General Agreement on Tariffs and Trade, and entered into force with the establishment of the WTO at the beginning of 1995.

⁶⁵ The TBT Code of Good Practice has so far been accepted by 151 standardising bodies, governmental and non-governmental from 110 countries.

⁶⁶ Decision of the TBT Committee on principles for the development of international standards, guides and recommendations with relation to art. 2, 5 and Annex 3 of the Agreement.

⁶⁷ European Commission Staff Working Paper, *European policy principles on international standardisation*, 26 July 2001, SEC (2001) 1269.

history of European standardisation. It sets out the intrinsic characteristics of standardisation in the Single Market: the principles of the harmonised ‘standards-setting’, its deliverables (‘EU norms’) and its institutional basis (the three European standards organisations).

The EU standardisation system has been legally enshrined in what is commonly known as the “New Approach Model”. The legal basis of the New Approach Directives is clear: in view of the establishment of the internal market, article 95 of the EC Treaty requires the Commission to ensure a high level of protection in the legislative proposals it puts forward concerning health, safety, environmental and consumer protection. Once adopted, the New Approach Directives are total harmonisation Directives: their provisions supersede all corresponding national provisions.

The rules and principles governing the EU standards setting within the internal market are laid down in Council Resolution of May 1985 on a New Approach to technical harmonisation and standards. This Resolution is further implemented by EU Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services (known as the “New Approach” or “Transparency” Directive)^[68]. The New Approach strategy is illustrative of a very effective and efficient co-regulatory approach in domains related to the protection of health, safety and security.

The introduction of standards under the “New Approach” formula covers a wide range of products (toys, medical devices, lifts, etc.) in traditional business sectors (construction, machinery, equipment, etc.). Since the entry into force of the New Approach, around 20 New Approach Directives have been adopted^[69]. With an amendment by Directive 98/48/EC, the scope of the “Transparency Directive” was extended to cover information society services. However, the Directive still does not apply to radio and television broadcasting services.

New Approach Principles – The following four principles established by the Council Resolution of May 1985 underpin the standards-setting philosophy under the New Approach:

- Legislative harmonisation is limited to the adoption of essential requirements^[70] that products should meet in order to enjoy free movement within the internal market.
- Standards and technical specifications are a means to address the essential requirements.
- Standards-setting activities in the framework of the New Approach are entrusted to organisations competent in the standardisation area.
- The adoption of standards, including those set out in the context of the New Approach, remains voluntary. However, the Resolution obliges Member States to recognise those standards adopted under the New Approach a “presumption of conformity”. Practically speaking, this presumption means that, if a producer follows the said standards, they do not need to prove how their product complies with the legal rules. Adherence to the said standard implies automatic adherence to the legal requirements.

⁶⁸ Directive of the European Parliament and the Council of 22 June 1998, OJ L 204 of 21 July 1998, as amended by Directive 98/48/EC of the European Parliament and of the Council of 20 July 1998.

⁶⁹ As an example of New Approach Directives we can state “The Low Voltage” Directive (73/23/EEC as consolidated), the “Safety of Toys” Directive (88/378/EC as consolidated), the “Pressure Equipment” Directive (97/23/EC), etc. The entire list of these Directives can be found on the website of the European Commission, Enterprise DG, at: <http://ec.europa.eu/enterprise/newapproach/standardisation/harmstds/reflist.html>

⁷⁰ As specified in the recommendation, these requirements concern first of all product safety, but can also address any other requirement of general interest, such as product quality, security, environment-friendliness, user-friendliness, etc. or other functionalities depending on the nature of the product and the sector in question.

Scope – Furthermore, the Resolution sets out the criteria that must determine the industry areas in which this approach should apply.

Accordingly, the areas in question should not call for an exhaustive regulation: domains in which public authorities should maintain intact their responsibility for protection of their citizens should be inappropriate for tackling only “essential” requirements.

Secondly, the sector concerned should have the “potential” or “capacity” for standards-setting work. Domains or activities requiring stricter regulations elsewhere in EU legislation do not fall under the scope of the New Approach.

Thirdly, the New Approach should target only those sectors in which strict law-making, at a Community level, is not at an advanced stage.

The fourth criterion should determine whether, in the selected areas, products must be sufficiently homogeneous to allow “essential requirements” to be defined^[71].

Finally, there must be sufficient grounds to consider that the existence of different regulations could constitute in practice an internal market barrier. If this justification does not appear in an obvious way, there should at least be felt the need to protect an essential public interest in a uniform way throughout the Community.

Basic rules of standards making - Alongside recognising these principles, the “Transparency” Directive sets out basic standards-making rules at both the EU and national level. The act introduces a specific process for informing the EU Commission and Member States of any national initiative taken with a view to developing draft standards or technical regulations.

Concurrently, the Directive has an impact on the organisation of standards-setting initiatives undertaken at the EU level, because, inter alia:

- It subjects national standards-making activities or legislation, that refers to or encourages the use of standards, to *a priori* communication and examination by the EU Commission and the other Member States (notably art. 2, §§1 and 3, art. 8);
- It recognises the *pre-eminence* of standardisation work that is prepared or carried out at EU level within the European standardisation bodies over any other similar or conflicting activity that may be undertaken at national level. Accordingly, Member States are called neither to object to any standardisation discussion initiated at EU level nor to undertake any action which may prejudice this initiative (art. 4, §1).
- It sets out the formation of a standing committee to consult the EU Commission on the implementation of the Directive, in particular regarding new initiatives for standards-setting work that should be taken at EU level (“Consultative Committee 98/34”, art. 6 §2).
- It formalises the preparation of European standards through explicit requests that the Commission addresses to the European standards institutions, the so-called “mandates” (art. 6, §3, first indent).
- It imposes standstill obligations: Accordingly, in the course of preparation of EU standards by the European standards bodies, the national standards organisations must refrain from any work or initiative that could hinder or prejudice the harmonisation sought at EU level (art. 7, §1).

⁷¹ However, this criterion does not preclude standardisation under the New Approach targeting a single type of product if the rest of criteria are fulfilled.

- It confirms the pre-eminence of EU standards over national standards: Thus, new or revised national standards that are adopted by national standards bodies must be completely in line with European standards if they exist (art. 7, §1).
- It recognises the formal European standardisation bodies: Accordingly, the EU standardisation work detailed in the Directive is entrusted to three organisations: CEN, CENELEC and ETSI (Annex I).

2.3 The participants in the standardisation system

The EU standardisation system is characterized by the involvement of a variety of participants responsible for setting out the policy objectives (European public authorities), organizing the standardisation efforts (ESOs), ensuring the protection of societal interests (public interest stakeholders), and adopting the deliverables (NSBs).

2.3.1 The European Standards Organisations

Three recognised bodies – EU standards-setting is organised on the basis of independent and statutes-based procedures adopted by the three recognised standardisation bodies in the EU: the European Committee for Standardisation (CEN), the European Committee for Electrotechnical standardisation (CENELEC) and the European Telecommunications Standards Institute (ETSI). These three organisations are recognised by Community law as ‘European Standards bodies or organisations (ESOs)’^[72].

CEN and CENELEC are basically functioning on national representation at the consensus building level and at the implementation level. ETSI is based on a direct participation of participants and produces ETSI deliverables that do not necessarily need implementation in the national standards catalogues.

According to the organisations’ statutes, “the closest possible liaison shall be maintained in areas where the technical work of these organisations is found to overlap”^[73]. The co-operation between the three ESOs on subjects of common interest or in common technical areas is organised according to more detailed rules laid down in the statutes.

In response to market developments, such as the rise of consortia, the ESOs are constantly trying to improve and adapt their procedures. Examples of these are the creation of new deliverables, such as CEN CWAs (Workshop Agreements), ETSI TS (Technical Specifications) and GS (Group Specifications), and the provision of a platform for banking software source code in a CEN Workshop.^[74]

- **CEN** – According to CEN’s statutes, its mission in all sectors, other than the electro-technical sector, can be summarised inter alia as: the harmonisation of national standards published by CEN members, the promotion of uniform implementation of international standards published by CEN members, the preparation of European Standards “de novo” where no appropriate international or other standards exist, support for worldwide standardisation in the International Organisation for Standardisation (ISO), co-operation with the EC and the EFTA so that European Standards (EN) and Harmonisation Documents (HD) can be referred to in their directives or other instruments”^[75]. The members of CEN are

⁷² Annex I of Directive 98/34/EC of the European Parliament and of the Council laying down a procedure for the provision of information in the field of technical standards and regulations.

⁷³ Art. 4.2, clause 4.2.1.1. of CEN/CENELEC Internal Regulations - Part 2: Common Rules for Standards Work.

⁷⁴ These new procedures and deliverables are being debated below under subsection 2.5 “Deliverables in the standardisation ” on page 37.

⁷⁵ Article 4, CEN/CENELEC Internal Regulations Part 1A.

primarily the standards-setting organisations of the EU and EFTA countries. Yet, CEN's organisational structure comprises the status of associate and affiliate member, counsels and other liaisons^[76].

- **CENELEC** – Standardisation-setting in the electrotechnical sector is managed by CENELEC. The managerial structure and technical organisation of CENELEC mirrors that of CEN's. CENELEC's members are again the national standardisation bodies and some EFTA countries, which contribute to the creation/harmonisation of electrotechnical standards through delegations in the Technical Committees (TCs). Like CEN, the mission of CENELEC is primarily to develop voluntary standards in the electrotechnical sector and to promote them at an international level in close co-operation with the International Electrotechnical Commission (IEC).
- **ETSI** – The European standardisation organisation with the most recent history is ETSI. Its statutory task is to produce standards in the telecommunications sector and in areas common to telecommunications, information technology and broadcasting in co-ordination with CEN and CENELEC. ETSI's task is to build upon world-wide standards, existing or in preparation. Its activities should contribute to the production and the promotion of new harmonised worldwide standards^[77].

Contrary to CEN and CENELEC, ETSI grants full membership status not only to National Standards Bodies (note that NSBs are not necessarily member of ETSI), but to a whole range of other organisations, such as manufacturers, network operators, administrations, service providers, research bodies and users - in fact, "all key players in the ICT arena"^[78]. Basically, full member status can be obtained by a legal person, be it an association, a company, a grouping, an organisation or a public authority. However, liaisons with ETSI through another status (associate membership or observership) is also possible. In ETSI, the preparation of standards and other relevant deliverables is entrusted to the "Technical Organisations", being statutory organs which provide a structure in which experts can work together "efficiently and effectively". The Technical Organisation itself is sub-divided to other types of technical bodies - technical committees and partnership projects^[79].

2.3.2 National Standards Bodies

Influential role – With the creation of the three ESOs and the implementation of the New Approach, EU standardisation activity has moved substantially away from the national to the European and international level.^[80] However, NSBs still have an influential role to play on the European standards setting scene, given that the subsidiarity principle gives Member States responsibility for the implementation of the policy at the national level. As such, there is a close relationship between the Member States, their NSBs and the ESOs.

Some examples – The influence of the NSBs can be evidenced through the following examples:

- In most of the working structures of the ESOs, NSBs support the technical work undertaken in the technical committees or similar working structures (i.e. by submitting proposals for standards-setting, sending delegations to these committees, providing secretarial support to them, etc.).

⁷⁶ For more information, see: <http://www.cenorm.be>

⁷⁷ Art. 2; ETSI statutes as adopted by the General Assembly on 19 April 1996, reference found in *Legal aspects of standardisation in the Member States of the EC and EFTA*, vol. 1, Harm Schepel, Josef Falke, European Communities 2000, p. 11, footnote 52.

⁷⁸ As quoted from ETSI's website, <http://www.etsi.org>

⁷⁹ More detailed information about this subdivision and the role of each working group can be found in *Legal aspects of standardisation in the Member States of the EC and EFTA*, vol. 1, Harm Schepel, Josef Falke, European Communities 2000, p. 14 and ff.

⁸⁰ This study focuses on the role of the NSB rather than the role of the Member State.

- NSBs establish a permanent link between market players, in particular SMEs, and public interest groups;
- NSBs are in charge of advising the national market about standardisation activities, outcome of standardisation actions and deliverables;
- NSBs maintain “the authority” in terms of the adoption of European standards (ENs): notably, they carry out at national level the activities related to standstill, public enquiry, establishment of the national position for the vote on Draft ENs. Also, they are responsible for ensuring the transposition of ENs after their adoption and the withdrawal of respective national standards.
- NSBs contribute to the financing of ESOs and may act as an intermediary for the acquisition of standards by market players^[81].

Significantly, however, the role of National Standards Bodies in ETSI differs from their role in CEN/CENELEC: CEN and CENELEC are federations of national organisations with a reduced power level of the Central Secretariat, while ETSI is an organisation ruled by the General Assembly (GA) accessible to all ETSI members.

2.3.3 *The public interest stakeholders*

Protection of societal interests – It is important to note that societal interests (safety and environmental, consumer protection, privacy and security concerns, etc.), in principle, have a voice in the current standardisation system given that they are able to participate in the standards-setting process at ESO level.

Access possibilities and the active involvement of public interest groups is available and included in the working structure of each ESO. The frequency and quality of participation of these constituencies in the EU standardisation system increases the latter’s political acceptability. Organisations defending the public interest can, in principle, be included in the standardisation process through full ETSI membership status or through CEN/CENELEC associate status.

Set-up of specific organisations - A number of organisations representing sector-specific public interests have been set-up and are financially supported through Commission funds in order to improve participation in the standardisation activities of ESOs. These stakeholders are, for instance, the European Association for the Co-ordination of Consumer Representation in Standardisation (ANEC) and the European Office of Arts/Crafts and of SMEs in standardisation (NORMAPME), the European Environmental Citizens Organisation for Standardisation (ECOS) etc. A list of the public interest stakeholders can, for example, be found on the website of CEN.^[82]

2.3.4 *The EU public authorities*

Double role – The EU public authorities have a double role to play in the current EU standardisation system. On the one hand, they formally take part in the standards-making process as any other market actor. In this case, amongst others, they act as an authority with a duty to protect the public interest. Public authorities are also directly involved in the standardisation process through the issuance of mandates.

More often, public authorities have to reconcile, within the standardisation process, the Single Market

⁸¹ Such power is however relative, taking into account the differences that exist in terms of financing and funding, as well as availability of the adopted standards, between CEN/CENELEC and ETSI.

⁸² <http://www.cen.eu> (see “associates”).

with fundamental community interests, i.e. proprietary interests on standards vs. the citizens' interest in the dissemination of innovation. Their legitimate right to participate in the standardisation process has been denoted since standardisation is considered a key instrument to attain other Community policy objectives, apart from the Single Market^[83].

Formal objection possibility – Under the New Approach, if the public authorities consider that a harmonised standard does not entirely satisfy the essential requirements of the regulatory framework (the said “New Approach” Directive), the publication of the references of the standard concerned or its relevant parts can be withdrawn. This is done through a “standards safeguard clause” which is also called a “formal objection”. Given the two-fold responsibility that public bodies are now called to take over in the achievement of other community objectives through standards-setting, additional mechanisms are being explored to improve the current system of objections^[84].

2.4 Procedures in the standardisation system

Based on efficiency and accountability – The ESOs have established internal working procedures based on the EU standardisation principles of efficiency and accountability^[85].

The accountability principle, within ESO internal working rules, is reflected in the:

- Institutional rules relating to questions such as access to membership, access for EU-based interest groups, dialogue with public authorities, etc..
- Possibility of all interested parties to participate effectively in standardisation work, under fair conditions.
- Need to verify consensus through national public enquiry, the establishment of consensus through national representation, and, in certain countries, the need to make standards available in the national language.
- The obligation on NSBs to transpose European standards in a uniform way, and to withdraw conflicting national standards.

Similarly, the efficiency principle means that internal working procedures with ESOs should actually result in the:

- Setting of high-quality standards that are delivered in time.
- Building of consultation mechanisms that allow for quick and direct public access (i.e. through electronic procedures, etc.).
- Identification of appropriate decision-taking systems wherever consensus-based solutions cannot practically work.
- Development of standards with concrete and effective implementation targets.

⁸³ Report from the Commission to the Council and the European Parliament of 26 September 2001 on *Actions taken following the resolutions on European standardisation* adopted by the Council and the European Parliament in 1999, p. 9 and ff.; on the basis of Council Resolution of 28.10.1999, OJ C 141, 19.05.2000.

⁸⁴ *Ibid.*, p. 12.

⁸⁵ See PART IV.2.1.4 “EU standardisation system principles”. See, in this respect, General Guidelines for the co-operation between CEN, CENELEC and ETSI and the European Commission and the European Free Trade Association, 28 March 2003, p. 1, point 1.

- Efficient roll-out of standards on the market, enabling massive and low-cost adoption ^[86].

Core procedure rules – To meet the above prerogatives, the ESOs strive to follow a number of core procedural rules enshrined in their internal regulations (technical working procedures, rules of procedure, etc.), such as:

- Draft standards becoming available for public comment before approval within a certain time frame.
- Existing European standards must be reviewed at reasonable intervals and if necessary, they shall be revised.
- Decisions on standards adoption are subject to an appeals procedure. Other *action or inaction* of the organisations may also be subject to appeal.
- Efforts of chairpersons of technical committees shall exhaust all possibilities of obtaining consensus in the adoption of standards.
- Members of ESOs are subject to a standstill obligation during the period in which ENs are under preparation within technical committees.
- Once standards are adopted, all members are obliged to transpose them (even if they objected to their adoption during the standards-setting procedure); etc ^[87].

2.5 Deliverables in the standardisation system

The European Standardisation Bodies produce a variety of standardisation related deliverables. The traditional deliverables of the EU standardisation process in support of legislation are harmonised standards (ENs) as defined in the Directive 98/34, although “new deliverables” such as ETSI Technical Specifications (TSs) and CEN/CENELEC Workshop Agreements (CWA) have been developed in response to evolving market requirements.

Harmonised standards remain the main tool in support of the New Approach legislation. The “new deliverables” are mainly considered in support of non New Approach legislation on a case-by-case basis. An assessment of these new deliverables is being done in the next section. ^[88] Below follows a short description of the deliverables produced by the three ESOs. ^[89]

2.5.1 CEN deliverables

CEN’s products are the European Standards and other approved documents available for purchase from their National Members.

- **European Standards (ENs)** are drafted as a general rule. ENs are adopted following a European-wide public enquiry and a formal weighted vote of the members (i.e. the NSBs). Members are then obliged to implement European Standards by giving them the status of national standards. The members must

⁸⁶ Analysis of these principles is based, inter alia, on Commission Report, Efficiency and accountability in European Standardisation under the New Approach, COM(1998) 291final, p. 4-6.

⁸⁷ To note that these rules stem from the ESOs internal regulations; they are mentioned herein on indicative basis only and do not discuss preclude procedural differences that are likely to exist between the different ESOs and/or their organs.

⁸⁸ See 3.2 “Introduction of new deliverables” on page 45.

⁸⁹ The text of this subsection is based on *Legal aspects of standardisation in the Member States of the EC and EFTA*, vol. 1, Harm Schepel, Josef Falke, European Communities 2000, p. 96-100, the CEN website (<http://www.cen.eu>), the CENELEC website (<http://www.cenelec.org>) and the ETSI website (<http://www.etsi.org>).

transpose the final text ratified by vote into national standards – translating them if desired – but without deviation or alteration, and retain the prefix EN in the national designation: e.g. BS EN 1234, NF EN 1234, DIN EN 1234. Thus the number and technical content of the standard are exactly the same throughout Europe.

- **Technical Specifications (CEN TSs)** – TSs are established as prospective standards for provisional application in technical fields where the innovation rate is high or where there is an urgent need for guidance under condition that the safety of persons or goods is not involved. TSs do not have to be adopted by the members, but they must be announced and made available. These documents were formerly known as European Prestandards (ENVs). For reference reasons, some ENVs are still available.
- **Technical Reports (CEN TRs)** – are reports for information and the transfer of information. These reports (also called CEN reports or CRs) may be adopted by the Technical Board of CEN with a simple majority decision in cases where it is considered urgent or advisable to provide information to the members.
- **CEN Workshop Agreements (CWAs)** – are consensus-based specifications, drawn up in an Open Workshop environment with unrestricted direct representation of interested parties. New Workshops may be proposed by any company, group of companies, association, CEN Member, CEN Technical Committees or by public authorities.

2.5.2 Cenelec deliverables

CENELEC's standardisation products are typically the following deliverables:

- **European Standards (ENs)** – It is a normative document available, in principle, in the three official languages of CENELEC (English, French and German) that cannot be in conflict with any other CENELEC standard. EN's are the most important deliverable published by CENELEC. Its development is governed by the principles of consensus, openness and transparency, a national commitment to implement it in each and every one of the countries member of CENELEC, its technical coherence regarding both national and European levels. Before its implementation, the EN must follow the following steps: Drafting by a CENELEC Technical Committee or Working Group, inquiry at a national level, a formal vote followed by a standstill at national level and the final approval by the Technical Board before its implementation in all member countries.
- **Harmonization Document (HD)** – The HD has the same characteristics as the EN except for the fact that there is no obligation to publish an identical national standard at national level (may be done in different documents/parts), taking into account that the technical content of the HD must be transposed in an equal manner everywhere.

The EN and the HD are referred to commonly as “standards” and must be implemented in all CENELEC member countries, who must also withdraw any conflicting standards. There are a few differences in the implementation process of EN's and HD's. Basically, the EN must be transposed as it is, not adding or deleting anything. The process for HD's is a bit more flexible. It is the technical content that must be transposed, no matter the wording or how many documents are made of it.

In addition to these two major deliverables, CENELEC also produces and approves documents with a different objective and target:

- **Technical Specification (TS)** – A TS is a normative document produced and approved by a Technical Committee (not by CENELEC as such). Several of the compulsory requirements need to have a standard that does not apply to Technical Specifications: there is no standstill, no public enquiry, the vote does not follow the same rules as those used in the CENELEC Technical Board (where it is weighted). A TS must only be produced in one of the official languages and its maximum lifetime is reduced to two

or three years. Technical Specifications are explained in terms of supporting the European Market and act as a guidance method towards evolving technologies and experimental circumstances that would not gather enough consensus allowing it to be published as an EN. A TS may not conflict with any other CENELEC standard. If a conflicting standard (EN) is published in the meantime, then the TS must be withdrawn.

- **Technical Report (TR)** – A Technical Report is an informative document on the technical content of standardization work. Only required in one of the 3 official languages, a TR is approved by the Technical Board or by a Technical Committee by simple majority. No lifetime limit applies.
- **Guides (G)** – CENELEC Guides are informative documents related to the “internal system”. They may specify information about standardization principles and guidance to standards writers. Guides must be approved at General Assembly or Technical Board level. No lifetime limit applies.
- **CWA – CENELEC Workshop Agreement** – CWAs are an agreement developed and approved by a Workshop through consensus reached among identified individuals and organizations. They must be published at least in one of the official languages. Revision is possible.

2.5.3 ETSI deliverables

The ETSI Technical Bodies produce different types of deliverables, such as ETSI Technical Specifications (TSs), ETSI Standards (ESs), ETSI Guides (EGs), European Standards (ENs) and ETSI Technical Reports (TRs). When choosing the deliverable type, the Technical Body (TB) has first to decide whether the final document to be produced is intended to contain mainly informative or mainly normative text.

- **European Standard (telecommunications series), EN** – An ETSI deliverable containing normative provisions, is approved for publication during a process involving the National Standards Organizations and/or ETSI National Delegations with implications concerning standstill and national transposition. The ENs format should be chosen if it is intended to cover regulatory type approval or ONP-related matters or if it is intended for use as a harmonised standard. Typical examples are radio-related and terminal equipment standards.
- **Harmonized Standard** – An EN (telecommunications series) which has been entrusted to ETSI by a mandate from the European Commission under European Directive 98/48/EC (latest amendment to Directive 83/189/EEC) and has been drafted taking into account the applicable essential requirements of the “New Approach” Directive and whose reference has subsequently been announced in the Official Journal of the European Communities.
- **ETSI Technical Specification (TS)** – An ETSI deliverable, containing normative provisions, approved for publication by a Technical Body. The TS format should be chosen, in general, as the default deliverable type. It can be made publicly available immediately after the TBs approval.
- **ETSI Standard (ES)** – An ETSI deliverable, containing normative provisions, approved by the TB for publication by application of the Membership Approval Procedure. The ES format should be chosen if it is required to reach a common position on a matter of strategic importance, which may be submitted to the ITU or other Standardisation Body.
- **ETSI Guide (EG)** – An ETSI deliverable, containing mainly informative elements, approved for publication by application of the Membership Approval Procedure. The EG format should be chosen when the subject matter gives guidance to the work of the whole or major parts of the Technical Organisation, or if the content is of general interest within ETSI.
- **ETSI Technical Report (TR)** – An ETSI deliverable, containing mainly informative elements, approved for publication by a Technical Body. The TR format should be chosen when the document contains

information which is useful for reference purposes, but which typically, only affects the technology area of the originating TB.

2.6 ICT standardisation under New Approach

The legal model of the New Approach has been successfully used in the ICT sector in three main cases: a) harmonised requirements on low-voltage electrical equipment, b) the regulation of the electromagnetic compatibility of equipment and c) the mutual recognition of conformity of radio equipment and telecommunications terminal equipment.

We describe briefly below the way in which standards are introduced in these cases and the added-value attached to such standards, as expressly recognised in the respective legal acts.

2.6.1 The Low Voltage Directive

The Low Voltage Directive (LVD) 73/23/EEC^[90] covers electrical equipment designed for use with a voltage rating of between 50 and 1000 volt for alternating current and between 75 and 1500 volt for direct current (art. 1 of LVD). This act is one of the oldest Single Market Directives and was adopted before the introduction of the “New” or “Global” Approach. However, the LVD does have “New Approach” characteristics, given that: a) it prescribes the essential health and safety requirements which electrical low voltage equipment^[91] must meet; and b) it refers to “harmonised standards” as a means for ensuring compliance with the essential requirements.

The essential safety requirements and the safety objectives are provided in the LVD’s text in an exhaustive way, meaning that Member States cannot impose stricter requirements (art. 2 and 4 LVD) to product manufacturers. Further, the LVD stipulates that competent national authorities must not impede the placing on the market and the free movement of electrical equipment which complies with safety provisions incorporated into harmonised standards. Although the LVD does not link the adoption of “harmonised” standards to a specific process (given that no formal “New Approach” process had yet been enacted at the time of adoption of the LVD), it specifies the conditions that should be met in order to qualify a standard as harmonised. Accordingly, “standards shall be regarded as harmonised once they are drawn up by common agreement between the bodies notified by the Member States in accordance with the procedure laid down in Article [...], and published under national procedures” (art. 5, §2). The same article implicitly sets out the obligation to keep standards updated in the light of technological progress. It finally stipulates that the list of harmonised standards and their references shall be published in the Official Journal for information purposes.

One of the elements that are assessed as positive in this LVD is the scheme of self-declaration that it introduces in relation to conformity assessment^[92]. The self-declaration scheme means that the manufacturer ascertains that his product satisfies the prescribed essential requirements in a written declaration of conformity. In this written statement, the manufacturer must include a list of the harmonised standards he follows. Alternatively, he must describe (e.g. by reference to other technical specifications) the solutions adopted to satisfy the safety requirements addressed in the Directive (Annex III, B. and Annex IV of the LVD).

⁹⁰ As amended by Council Directive of 19 February 1973.

⁹¹ The scope of the Directive covers electrical equipment designed for use with a voltage rating of between 50 and 1000 V for alternating current and between 75 and 1500 V for direct current (art. 1 of LVD).

⁹² As noted in outline information about LVD that can be found at http://ec.europa.eu/enterprise/elect_equipment/lv/index.htm

2.6.2 *The Electromagnetic Compatibility Directive*

The purpose of the Electromagnetic Compatibility Directive (EMC Directive 83/336/EEC) is to provide clear requirements of electromagnetic compatibility for equipment intended to be connected to radio or telecommunications networks or electrical supply networks in order to prevent electromagnetic disturbance. The EMC Directive was subject to a review and will be replaced by the Directive 2004/108/EC on the same subject matter from 20 July 2007.

As is the case with the old EMC Directive, the “new” EMC Directive, Directive 2004/108, is based on the New Approach. This is clearly stated in Recital 12 of its text, which also sets out expressly that CEN, CENELEC and ETSI are recognised as the competent institutions in the field of this Directive for the adoption of harmonised standards. The Directive also clarifies the meaning of harmonised standards and what “compliance with a harmonised standard” means^[93]. It stresses nevertheless that compliance with a harmonised standard is not compulsory (article 6, §1) and denotes that the added-value of meeting harmonised standards is the presumption of conformity deriving from them. References of harmonised standards adopted in the framework of this Directive are published in the Official Journal (article 6, §2).

Compared to the old Directive, the new EMC Directive identifies important changes regarding the assessment of conformity of the product with the essential requirements. Regarding the relation of standards and conformity assessment, the Directive points out that the correct application of harmonised standards must be regarded as equivalent to the carrying out of an assessment (Annex II, §1). If no harmonised standards are used, manufacturers are obliged by other techniques (appropriate testing, preparation of a technical file, notification to competent bodies, etc.) to demonstrate the compliance of their equipment to essential requirements.

2.6.3 *The Radio and Telecommunications Terminal Equipment Directive*

The Radio and Telecommunications Terminal Equipment Directive (R&TTE Directive, 1999/5/EC) defines clear rules for the placing on the market and putting into service of all products using the radio frequency spectrum (car door openers, cellular phones, etc.). It also applies to all equipment attached to public telecommunications networks (ADSL modems, telephones, telephone switches, etc.).

Following the “New Approach” model, this Directive provides the definition of “harmonised standards” by confirming their non-mandatory use (art. 2, point h)). It sets out a list of essential requirements (article 3) and confirms the presumption of compliance of apparatus that meets the relevant harmonised standards (article 5). In addition, if a manufacturer has applied the harmonised standards he may choose not to go through the conformity assessment procedure(s) described in the Directive (article 10, §4).

Also, in Recital 26, the R&TTE Directive sets out some principles that should underpin the standardisation procedure for the adoption of the standards foreseen in the Directive. First, the Directive draws a dividing line between the responsibilities of the standardisation bodies and those of the regulator. It renders the European standardisation organisations, notably ETSI, accountable for drawing up standards with a clear content and for updating them “as appropriate”. Secondly, given the highly technical and complex nature of the standards in question, the Directive requests the active participation of experts drawn from amongst the economic players in the standards-setting process. Thirdly, the Directive recognises that compliance to the legal requirements may imply the adoption, amendment or interpretation of the corresponding standards

⁹³ Following Recital 13, “compliance with a harmonised standard means conformity with its provisions and demonstration thereof by the methods the harmonised standard describes or refers to”.

through swifter procedures than by following the normal New Approach procedure laid down in the “Transparency” Directive. This is the only point of the text about which the R&TTE Directive talks about the adoption of “other” standardisation procedures rather than the New Approach that may be justified in view of the urgency of the matter. The text does not provide more precisions in this respect. However, it appears, that the Directive recognises that the deliverables of such “other” procedures may also lead to “recognised” standards for the implementation of the legal prerogatives.

2.6.4 Other examples

Interestingly, this New Approach model has also been used for initiating standardisation activities outside the typical field of application of the New Approach. Examples of using the model in support of non-New Approach legislation are the standardisation activities carried out in support of the Electronic Signatures Directive 1999/93/EC and the Telecommunication Framework Package Directive 2002/21/EC.

Whilst for New Approach legal acts the standards referenced are harmonised standards (ENs), this is not necessarily the case for the non-New Approach legal acts. These legal acts do not require ENs and allow the use of “new deliverables” such as ETS, CWA, TS or guides.

3. The EU’s response to ICT related challenges

EU policy, together with that of the ESOs, has been to engage extensively in initiatives for encompassing the ICT related challenges. Over the years, a proper response has been sought, by:

- adopting specific legislation aiming at the ICT standardisation area (Council Decision 97/95)
- introducing new deliverables (CWAs, ETs)
- creating consultation and coordination bodies (SOGITS, ICTSB)
- involving industry in the standardisation work (Workshops, co-operation agreements)
- delegating representatives to other regions (China) and organisations (ISO)
- setting up marketing activities, etc.

The following subchapters will look at the initiatives more closely and assess their effectiveness.

3.1 Council Decision on ICT standardisation

Twenty years ago already, a specific legal instrument covering the ICT standardisation sector was adopted: Council Decision 87/95/EC on standardisation in the field of information technology and telecommunications.^[94]

The complexity of ICT technology and the fact that a great deal of standardisation work is being carried out at international level encouraged the adoption of this specific Council Decision. It was also found that the New Approach reference tools (at that time, regulated by Directive 83/189) could not address with enough precision all of the important issues for standards-setting activities relating to information and communications technology. On the other hand, the operation of standards-making described in the “Transparency” Directive, on many occasions, has proven to be too slow to keep pace with technology.

⁹⁴ Council Decision of 22 December 1986, L 036 of 07 February 1987.

For all of these reasons the adoption of a number of rules that could better accommodate the needs of regulatory and technical harmonisation in the ICT sector, outside the scope of the “Transparency” Directive, were applied. The most salient improvements that Decision 87/95 brings to the standardisation landscape, alongside the generic requirements of the New Approach,^[95] are as follows:

- **Recognition of new deliverables:** As well as defining the term a “standard” (which is practically identical to that of the “Transparency” Directive), the Decision expressly recognises “European pre-standard”^[96], “functional standard” and “functional specification”. These three deliverables are believed to be formal outputs of the standardisation activities undertaken by the European standards institutions in the ICT area. The drafting of pre-standards is justified in cases where the adoption of European or international standards is subject to excessive delays. On the other hand, functional standards are adopted for ensuring systems interoperability (or interconnectivity of open systems in the case of functional specifications in the telecommunications area).
- **Setting interoperability as a standardisation objective:** Data and systems interoperability is recognised as a goal to achieve through standardisation work (article 2, point b)). The Decision clearly enumerates amongst its aims the need “to facilitate the exchange of information throughout the Community, by reducing the obstacles created by *incompatibilities* arising from the absence of standards or their lack of precision” (Annex, article 1). However, the interoperability concept is not defined in the Decision’s text as such.
- **Recognition of European Standards Organisations (ESOs):** The Decision explicitly entrusts the technical work in drawing up European standards or functional specifications to “the competent European standards organisations” or “specialised technical bodies” (articles 2 and 4). The Decision uses both terms to assign the technical work related to standards-setting to CEN, CENELEC and CEPT (now ETSI)^[97].
It is noteworthy that the Decision grants to the above-mentioned technical bodies wide competences in the area of standards setting. CEN, CENELEC and CEPT are competent not only for *the drafting* of European standards and pre-standards but also for activities related to the *application* of standards and their *promotion*. Such activities, in particular, cover conformity assessment, certification, the development of test-beds, the encouragement of standards’ use in public sector orders and technical regulations (article 2, c) and d)).
- **Introduction of mandates:** According to the Decision, the Commission issues *requests* to the EU standards bodies to carry out a specific standardisation activity for the development of European standards in the ICT sector (article 4). The agreement of two committees is needed before such requests can be issued: the Consultative Committee 98/34 and the standing committee provided in this Decision (SOGITS committee, see below).
- **Establishment of the SOGITS committee:** An advisory committee, called the “Senior Officials Group on standardisation in the field of Information Technology” (SOGITS), has been set up to assist the Commission in meeting the objectives of the 87/95 Decision. This Committee enjoys a wide consultative

⁹⁵ The Decision states explicitly that the standardisation process described in the “Transparency” Directive applies also in the adoption of standards in the ICT area (art. 4).

⁹⁶ The “European pre-standard” is defined as a standard adopted under the reference EPS in accordance with the statutory rules of the standards bodies with which the Community has concluded agreements (art. 1, n° 8).

⁹⁷ ETSI had not been founded at the time of publication of the Decision but it is however recognised as the formal European standards organisation in the area of electronic communications by the “Transparency” Directive. The European Conference of Postal and Telecommunications Administrations (CEPT) created the European Telecommunications Standards Institute (ETSI) in 1988 and it transferred to it all standards-setting activities of the telecommunications domain.

role on most matters specified in the Decision, especially the issuance of mandates in the area of ICT and the implementation of standards-setting and standards-related activities (see above). As is the case with Consultative Committee 98/34, the SOGITS committee consists of representatives appointed by the Member States, who may be assisted by technical experts or advisers.

- **Pre-eminence of international standards:** The Decision clearly states that standards-setting work undertaken at a European level must be subordinate to international standardisation activities. Accordingly, standardisation programmes that determine the European standardisation work on an annual basis must be based on international standards and must take account of related international standardisation activities (art. 2 (a) and b)). Along the same lines, work through a Commission's mandate in the telecommunications sector can not commence in so far as an international standard already exist and to the extent that its provisions do not necessitate any further interpretation. In other words, the clear provisions of an international standard must be adopted "as is" in the EU standard or other specification which transposes it at European level. Accordingly, European standardisation work is justified only for clarifying or completing the respective provisions of an international standard while avoiding divergence from it (article 2, b)).
- **Enhanced co-operation between ESOs:** According to the Decision, the technical competences of standardisation bodies in the ICT area are often overlapping. In order to avoid work duplication on matters of common interest, the Decision lays down the obligation for ESOs to collaborate closely. To this end, the Directive foresees also that standardisation activities may be undertaken jointly by the ESOs and initiatives in common may be discussed at an early stage (Recital 2 and 4).
- **Obligation to refer to standards in public procurement procedures:** The Decision obliges Member States to ensure that reference is made to European standards and European prestandards, or international standards when accepted in the country of the contracting authority, in public procurement orders relating to information technology (article 5).

Ten years later, and the principles enshrined in this Council Decision have been reiterated by the 1999 Council Resolution. This act recognises the impact of technological progress on standardisation at a global level and urges the ESOs to continue developing new policies to adapt to evolving market needs^[98]. It also requests the Commission to examine how a Community framework of principles for the use of new deliverables of standardisation should be developed and to explore whether differences between standardisation in the ICT and other sectors could be addressed. This Council Resolution turned out to be an action plan for all those involved in European standardisation, especially the ESOs.

If, in the Council Resolution, the Council reckoned only on the need to diversify the end-products of ESOs, two years later, the Commission went even further than the Council's suggestions. After taking account of the fact that market requirements have changed considerably, due to the ICT invasion, the Commission recognises the need to redesign not only standardisation products, but also policies, processes and organisational structures to better respond to the changing environment^[99].

Further, other policy documents continue to refer to the need to work together with players outside of the standardisation system and to take stock of the expertise and deliverables created by these players. It is for example noteworthy that the European Parliament stressed in 2006 that, apart from European standards, international and other standards strengthen the European internal market.^[100]

⁹⁸ Council Resolution of 28 October 1999 on *the role of standardisation in Europe*, esp. recitals 7 and 13-15.

⁹⁹ Commission Communication on the role of European standardisation in the framework of European policies and legislation, COM (2004)674 final, p. 6.

¹⁰⁰ See in this respect, Note from General Secretariat to the Council on the *Outcome of the European Parliament's first*

3.2 Introduction of new deliverables

3.2.1 Description

As a reaction to the considerable time required to formally initiate, approve and publish standards, the ESOs have introduced so called “fast track” procedures to accelerate the adoption of standards. The deliverables stemming from the fast track procedure are being called Workshop Agreements (CEN/CENELEC) or Technical Specifications (CEN/CENELEC/ETSI).

With this new product, the ESOs are trying to respond efficiently to those cases where short product life cycles do not permit the traditional standardisation process to be followed. The fear exists that if the ESOs do not introduce fast track procedures, the market will begin to prepare proprietary company specifications, which later become de facto standards. The open process of these Workshops aim to bridge the gap between industrial consortia producing de facto standards (with limited participation of the interested parties), and the formal European standardisation process which produces standards through consensus and with CEN members’ authority.^[101]

Consensus based open platforms – Approval for the Workshop standardisation process to begin can only be granted if certain conditions are met (for example, the non existence of previous standards, the establishment of a standards-setting “business plan”, sufficient interest of other market players in the given standardisation activity, etc.). The Workshops are defined as consensus-based and open working platforms in which standards can be adopted by a dedicated number of market players. Access to these workshops is also open to participants outside Europe. With a rapidly growing global standards market, CEN has decided to open the workshop process up to non-European interest groups. This way it can benefit from international standardisation developments. The Workshop mechanism tries to achieve a reasonable balance between openness/transparency and time/cost efficiency in the standardisation process. The same can not always be said of private standardisation efforts.

No “standard” status – Although customary language implies that the deliverables of these Workshops (Workshop Agreements - CWAs) are “standards”, they are not formal norms (standards meant as ENs) in the sense that they have not gone through the traditional standardisation process (consultation of National Standards Bodies, national voting, etc.). Since their adoption, Workshops have mainly been used for standardisation in the ICT sector.

3.2.2 Concern

Workshop Agreements and Technical Specifications are a direct response by CEN, CENELEC and ETSI to the global challenges of the ICT market (especially the need for speed) and the need to respond to the influence consortia have on specification development outside of European and/or international standardisation organisations.

The Workshop, for example, provides an alternative to the formal and rather rigid standardisation process of the Technical Committees. To a certain extent, it mirrors the “consortium” rationale, since it promotes

reading on the draft Decision on the financing of the EU standardisation, 2005/0157 (COD), Brussels 22 May 2006, p. 6. Also, Report of the Parliament, Committee on the Internal Market and Consumer Protection, session doc. final of 27.03.2006.

¹⁰¹ *Legal aspects of standardisation in the Member States of the EC and EFTA*, vol. 1, Harm Schepel, Josef Falke, European Communities 2000, p. 97.

the idea that any market player having an interest in a standardisation activity may initiate standards-setting work. On the one hand, CWAs meet demands from the private sector for a more flexible and timely alternative to the traditional ENs. On the other hand, they still possess the authority derived from the openness of participation and agreement inherent in the operations of recognised standardisation organisations.

Despite good intentions CWAs still raise certain questions. For example, the non existence of a clear definition of the legal value of CWAs and of the CWA concept. Furthermore, CWAs and TSs are not assigned the status of a formal standard (EN). Hence, in the case of CWAs and TSs, CEN members are not obliged to withdraw any pre-existing conflicting national standards. Further, the fact that CWAs are published at national level in CEN member catalogues adds uncertainty as to the legal value of these deliverables. It has been noted that users of standards have problems understanding the difference between the legal values of an EN and a CWA, given that both are published in the catalogues.

3.3 Introduction of consultation and coordination bodies

3.3.1 Description

SOGITS – Council Decision 87/95 establishes an advisory committee, the so-called ‘Senior Officials Group on standardization in the field of Information Technology’ or SOGITS. The purpose of this committee is to assist the European Commission in the management of the activities relating to ICT standardisation. For example, the European Commission should consult SOGITS before issuing a mandate to the ESOs. On a more general level, SOGITS assists the Commission when determining Community priorities. The SOGITS committee consists of representatives appointed by the Member States, who may call on the assistance of experts or advisers. The Committee shall meet at least twice a year (although in practice it has not been convened for the past six years. See below.)

ICTSB – The ICTSB (ICT Standards Board) is an initiative from the three ESOs with the participation of other specification providers from the industry, some non-formal SDOs and public interest organisations as partners or observers. Its aim is to co-ordinate specification activities in the ICT-area. The ICTSB has been created in response to the need for speed when developing ICT standards and the need to take stock of the know-how and experience of players other than ESOs in the standardisation process.

Stakeholders – As well as existing procedures that include public interest stakeholders in the standards marking process, public interest stakeholders are, in practice, already being consulted by the Commission before any mandate has been issued. These consultation rounds have proven to be very practical and useful for both the stakeholders and the European Commission, allowing the Commission to take into account all possible concerns and suggestions from the relevant stakeholders. However, no legal obligation exists to involve stakeholders in the early process of drafting a mandate.

3.3.2 Concern

SOGITS – As to SOGITS, we note that the SOGITS committee has not convened for the past six years although all participants have identified the need for such a platform. Furthermore, we note that the members of SOGITS are restricted to representatives of the Member States. Industry experts and other relevant parties are not part of SOGITS (unless they are being called upon by a Member State representative). Currently, Member States are only consulted via the so-called 98/34 Committee. It is formed by representatives appointed by the Member States who may call on the assistance of experts or advisers and by representatives

of the standards institutions referred to in Annex I (the three ESOs). It is general to all standardisation fields and it is not proving to be efficient in embracing the complexity of ICT.

Stakeholders – When preparing a standardisation mandate to support legislation, the European Commission will frequently ask the opinion of relevant stakeholders. This consultation round, however, is not obligatory and very much depends of the good will of the Commission official responsible. This results in a fragmented approach to wider stakeholder participation.

ICTSB – The ICTSB initiative is regarded as a sound first step for tackling some challenges imposed by the ICT sector (especially, the time issue and the market players issue). However, the role of the ICTSB is currently restricted to acting as a co-ordination point and facilitating an exchange of views between the member organisations and other interested parties. It only makes proposals and recommendations for consideration by the member organisations and other interested parties. ICTSB does not have a right, on its own, to begin the process of standardisation activities. For that to happen it has to fall back on the three ESO's or other participants. It is noteworthy that no relevant standards requirements have been brought to the ICTSB by any of its members.

3.4 International cooperation efforts

3.4.1 Description

The effect of globalisation on the ICT sector, from a European perspective, has been a growth in the importance of the ICT sector outside of the EU standardisation system. It is unrealistic to assume that global organisations can be formed under the auspices of the ESOs for every field of ICT technology, such as the ETSI 3GPP for cellular networks.

The ESOs are already seeking closer co-operation with other international standardisation bodies. The abovementioned Dresden Agreement and Vienna Agreement are examples of how European standardisation policy is trying to synchronize European standardisation efforts with international efforts, typically by introducing the possibility of developing standards in one single body and to approve them by parallel voting in both.

3.4.2 Concern

International Agreements seem to focus on specific deliverables only. The Vienna Agreement between CEN and ISO for example concerns the development of European Norms only. It is not sufficiently clear whether products other than ENs may be developed under the Vienna Agreement. Although, in practice, it may seem to be generally possible to integrate other deliverables under the Vienna Agreement, the procedures to be followed are not clear and procedural guidance may be needed on a case-by-case basis.

Certainly, the EU and ESOs should be concerned about the drafting of global standards and specifications by organisations outside of the traditional standardisation circles (see further under PART III.2 “A Regional policy in a global context” on page 65).

3.5 Attention for standardisation efforts outside the system

3.5.1 Description

Market support for standards-setting procedures taking place outside the remit of the formal standardisation system has become a common practice in the ICT sector. Yet, this tendency is not fully reflected in either the EU's standardisation policy or its legal framework.^[102] Still, many initiatives have been undertaken to encourage co-operation between, on the one hand, EU decision makers and the ESOs and specification providers on the other.

Upgrade to formal standards – It is true that specification providers who carry out core standardisation activities in the ICT sector are deprived by any de jure authority over standards-setting in the EU area. Deliverables of these platforms have no formal legal recognition if they remain “consortia standards”. However, these deliverables can become legally recognised when they have been upgraded into “formal standards” following the normal ESO procedures.

Indirect inclusion – Further, “indirect” ways of including consortia efforts are being followed, such as participation of these entities in consecutive R&D programmes such as the IST FPs, and co-operation through informal consultation procedures and through ICTSB (see above).

3.5.2 Concern

Although initiatives have been undertaken on an EU level, the feeling remains that further work should be done for fully taking stock of the work and efforts performed by specification providers outside the remit of the current EU ICT standardisation system.

Also, the current initiatives do not take a sufficiently clear position towards the issue itself. Although, policy makers do refer to the need to involve other specification providers than ESOs, the legal framework has not adapted to this situation and leaves uncertainty as to the level of incorporation of the work and activities of these participants. This concern has been further elaborated in several chapters of PART V below.

3.6 Using the New Approach model outside the scope of the New Approach

3.6.1 Description

Success of New Approach – For matters falling within its scope, the New Approach model has proven to be very successful – including the ICT sector. Examples of legal acts with New Approach characteristics that rely on the use of harmonised standards are the Radio and Telecommunication Terminal Equipment Directive 9(R&TTE) 1999/5/EC, the Low Voltage Directive (LVD) 73/22/EC and the Electromagnetic Compatibility Directive (EMC) 89/336/EC.

Thanks to its success, the EU has tried to use elements from the New Approach model for standardisation activities that are outside the scope of the New Approach directive. This “ad-hoc” regulation basically consists of EU Directives that require transposition in the Member States’ legal system in order to become

¹⁰² Although the New Approach Resolution of 1985 already states that: “*for specific sectors of industrial activity other competent European bodies (than CEN and CENELEC) for the drawing up of technical specifications could be involved*”, Council Resolution of 7 May 1985 on a new approach to technical harmonisation and standards, A. Justifications, third indent, (2).

“national law”. These Directives primarily serve internal market objectives; they are however not New Approach legislation. They provide the legal framework for adopting harmonised rules at EU level for a given product and/or service.

Examples of legal acts with non New Approach characteristics but that rely on the use of standards, are the Electronic Signatures Directive 1999/93/EC and the Telecommunication Framework Package Directive 2002/21/EC. Whereas for New Approach legal acts the standards referenced are harmonised standards (ENs), this is not necessarily the case for the non- New Approach legal acts. These legal acts do not require ENs and allow the use of “new deliverables” such as ETS, CWA, TS or guides.

Some of these legal instruments address services for which ICT solutions act as enablers but ICT is not their prime objective (privacy, VAT). Nevertheless, in some other cases, the functional requirements that can be covered through ICT are inherently linked to legal requirements (electronic signatures, regulation on electronic communications, etc.).

Use of the New Approach technique – As is the case with the New Approach technique, these acts address standards and standardisation as complementary to legislation. Accordingly, standards are recommended as a legally-safe way for implementing the legal requirements although they are not prescribed as the only means for achieving this compliance. Again, as is the case with the New Approach, not all standards can ensure *in an undisputed manner* the correct implementation of the legal requirements, but only the ones that are officially published on the initiative of the European Commission.^[103]

In the subsections below, we discuss the most important “ad-hoc” ICT regulations that impact upon ICT standards.

3.6.2 Example: Electronic Communications

Standardisation work related to electronic communications is primarily based on the Electronic Communications Directive (Directive 2002/21/EC, “Framework Directive”).^[104] This Directive seeks to establish a harmonised framework for the regulation of electronic communications networks and services with a view to converging the telecommunications, media and information technology sectors^[105]. Concurrently, the Directive introduces a set of rules and procedures that national regulatory authorities must abide by in order to ensure market transparency, fair competition and streamlined implementation of the Directive’s requirements.

The Framework Directive refers explicitly to standards in article 17 and, implicitly, to clauses imposing harmonisation requirements (e.g., regarding radio frequencies management or numbering issues). A first principle confirmed by this act is that standards “provide a basis for encouraging harmonised provision of electronic communications networks and services”. However, standardisation should primarily be regarded

¹⁰³ This does not mean that standards which are not published in the Official Journal are deprived from any legal value. However, non-published standards cannot benefit from the advantages that the legislative text may attach to the published standards (being primarily the presumption of conformity with the legal requirements, facilities regarding cross-border recognition of products or services integrating the standards or with respect to conformity assessment procedures, etc.).

¹⁰⁴ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, 7 March 2002, L 108 of 24.4.2002.

¹⁰⁵ It is to be noted that the Framework Directive is one of the five Directives consisting the new regulatory package on electronic communications networks and services. Standards addressed in this Directive encompass also requirements tackled by the other four Directives.

as a market-driven process (Recital 30). When regulatory authorities adopt regulations with a view to implementing the Directive's requirements, they must make them "technology neutral" (article 8, §1, Rec. 18). It is noteworthy that the Directive sets forth the interoperability of services and equipment as an overarching target of the harmonisation sought (article 8, 17, 18...).

As far as the EU standardisation policy is concerned, the Framework Directive puts an obligation on the European Commission to draw up and publish a list of standards and/or specifications as a means to achieve the harmonisation objectives of the Directive (article 17 §1). It also allows the Commission to request the elaboration of European standards by the European standards organisations. These standards-setting requests will be introduced to the ESOs following the traditional, "New Approach" procedure [thus, issuance of mandates, including consultation of the Committee 98/34 and the standing committee formed by this Directive (Cocom Committee)]. The standardisation programmes for the elaboration of recognised standards are explicitly confined to the ESOs (CEN, CENELEC and ETSI are named in the Directive as the competent bodies in this regard).

The Framework Directive clearly specifies that standards deriving from this process, especially the ones published in the Official Journal, remain voluntary. However, the use of these standards must be encouraged by public authorities to the extent that they are strictly necessary to ensure service interoperability and to improve freedom of choice for users. It is important to note that the Directive permits the adoption of compulsory standards in exceptional cases. Accordingly, the Commission may render the said standards mandatory if interoperability problems persist due to an insufficient implementation of the referenced standards by Member States (article 17, §4). However any decision to impose such standards is subject to a specific procedure (publication of a notice in the Official Journal, express indication, prior public consultation of the parties concerned, etc.). Finally, the Directive acknowledges the Commission's responsibility to remove from the published list any standards that can no longer contribute to the attainment of the legal objectives (interoperability, enhanced technological development, better choice for consumers, article 17, §§ 5 and 6).

In response to the requirements of the Framework Directive, the Commission issued a list of standards^[106] to replace the former standards' list that was valid under the old regulatory framework^[107].

Further, for the purpose of implementing relevant provisions in the Framework Directive and the Universal Service Directive, the Commission identified and published a Decision on the minimum set of leased lines with harmonised characteristics and associated standards^[108]. As noted in this Decision, the list refers to voluntary standards. This list forms an integral part of the general list of standards of the Framework Directive.

The list of standards under the Framework Directive was formulated as an interim list, since it covers both the former regulatory framework on telecommunications and the new legislative package. Moreover, it provides a selective list of standards due to be revised regularly. The standards referred to in the Commission's publication encompass a broad spectrum of electronic communications networks, electronic communications services and associated services, such as:

- Network access and interconnection;

¹⁰⁶ *List of standards and/or specifications for electronic communications networks, services and associated facilities and services*, OJ C 331 of 31.12.2002.

¹⁰⁷ Directive 90/387/EEC on open network provision, known as the "ONP Directive" applied only to the telecommunications sector. It was further amended by Directive 97/51/EC.

¹⁰⁸ Commission Decision of 24 July 2003, OJ L186 of 25 July 2003.

- Number portability in fixed and mobile public networks;
- Unbundled access to local loop;
- Use of electronic communications services by disabled users;
- Implementing data protection requirements in the electronic communications sector (e.g. calling and connected line identification services);
- Distributing digital broadcasting services, including digital television broadcasting (new item).

Most of the standards figuring in the list are ETSI deliverables: primarily European Norms (ENs) and to a lesser extent Technical Specifications (TS) or other informative documents. On the other hand, the Commission's document specifies that this interim list should be subject to regular revisions to take account of requirements resulting from new technologies and market changes.

The Commission launched the review process in May 2003 consisting primarily of the following stages^[109]:

- The Commission issued a mandate (M328) to the ESOs.
- ETSI set up special working groups, *the Operational Co-ordination Group on Electronic Communications Networks and Services Directives (OCG ECN&S)* and *Special Task Force 254 (STF 254)*, to work on the mandate. CEN and CENELEC were invited to contribute and nominated experts.
- ETSI provided a draft list of candidate standards, but also identified a large number of issues that required further clarification, including legal interpretation.
- The standing committee under the Framework Directive (Cocom) set up a group of experts from national administrations and regulators, tasked with an advisory role on the matter. This group is called the Cocom Expert Group on Standardisation.
- A public consultation on the subject matter is launched by the European Commission.
- The Cocom Expert group issues a guidance paper on the subject (February 8, 2005).
- ETSI responsible bodies (under 2) will issue the draft revised list of standards.
- The Cocom Expert Group and the Cocom itself will again be consulted on the ETSI's draft revised list of standards for further decision-making.
- The list of standards will be decided upon by the Commission after consideration of the position of Cocom.

3.6.3 Example: Digital TV

Digital television broadcasting services falls under the scope of the regulatory package on electronic communications, namely the Framework Directive (art. 18).

The Directive emphasises that interoperability in the provision of digital television broadcasting services should be enhanced. The implementation of an open application program interface (API) can be a tool to achieve the interoperability goal^[110]. To this end, the Directive lays down the obligation of Member States to encourage operators to implement open APIs which conform to standards or specifications adopted by European standards organisations (Recital 31, article 18 §1). This requirement reflects the general principle of the EU standardisation policy enshrined in the New Approach of encouraging open standards.

¹⁰⁹ See also Commission's website: http://europa.eu.int/information_society/policy/ecomm/info_centre/documentation

¹¹⁰ Open APIs facilitate interoperability, i.e. the portability of interactive content between delivery mechanisms, and full functionality of this content on enhanced digital television equipment.

The meaning of the “open standard” is not defined in the Framework Directive, although an open standard is implicitly meant to be the opposite of a “proprietary” standard (article 18, §2). In the context of digital interactive television services, the Commission seems to qualify as open standards those which are developed by European standardisation bodies through open and transparent procedures^[111]. On the other hand, the Directive encourages providers of proprietary APIs to ensure transparency of their technical specifications so that content providers can build interactive applications that function with these proprietary standards (article 18 §2).

Against this background, the digital interactive TV represents a reference case in which the Commission has actually looked into the possibility of making the use of specific standards for APIs mandatory. In fact, the Framework Directive contains a specific clause that justifies the compulsory application of interactive television standards in strictly limited cases. Accordingly, open standards may be mandated if the Commission considers that adequate interoperability has not been achieved for digital interactive television services across Europe (article 18 §3).

The Commission has examined the possibility of applying this provision twice^[112]. In both cases, however, it concluded that there was no clear necessity to impose any standard by legislation^[113]. For the time being, one only standard is published in the OJ as reference standard for digital television interactive services, the ETSI TS 102 819, the Multimedia Home Platform (MHP) standard. The adoption of this standard remains however voluntary. At the time of publication of the interim list of standards under the Framework Directive^[114], this standard was the only open standard for APIs adopted by ESOs.

Taking into account recent technological developments^[115], the Commission is now in the process of amending the list of standards. In an initial stage, a mandate was issued to the ESOs in 2003 inviting them to explore standardisation possibilities for digital interactive television services in support of the requirements of the Framework Directive (article 18)^[116]. However, regardless of the results of the ESOs’ standardisation activities, any amendment to the list of standards also requires the opinion of Member States via the Cocom Committee and its expert group as it was discussed above. A roadmap for the promotion of High Definition Television specifications (HDTV) has also been submitted to the Cocom committee for review.

In its last Communication on digital interactive television services, the Commission reaffirms its intention to support the implementation of open standards developed by the ESOs^[117].

3.6.4 Example: Electronic Signatures

The EU legal framework for the provision of electronic signatures’ and related services was established by

¹¹¹ Commission Communication on reviewing the interoperability of digital interactive television services pursuant to Communication COM (2004) 541, COM (2006) 37 final, p. 10.

¹¹² See relevant Commission Communications, COM (2004) 541 final on interoperability of digital interactive television services and COM (2006) 37 final on reviewing the interoperability of digital interactive television services pursuant to Communication COM(2004) 541.

¹¹³ The arguments that the Commission services put forward to justify their decision not to impose any standards, as well as the analysis of the legal constraints of mandating standards by regulation will be discussed in the 2nd interim report.

¹¹⁴ See above subsection PART II.3.6.2 on page 49.

¹¹⁵ E.g., the adoption of MHEG-5 and WTVML by ETSI.

¹¹⁶ M/331 rev.

¹¹⁷ COM (2006) 37 final on reviewing the interoperability of digital interactive television services pursuant to Communication COM(2004) 541, p. 9.

Directive 1999/93/EC (“eSignature Directive”)^[118]. Its primary objective is to contribute to the cross-border legal recognition of electronic signatures and of services related to their creation (notably, certification-related services). A second objective is to ensure that electronic- signature supporting products, equipment and services (e.g. electronic signature creation devices, certification services) can move freely within the Internal Market as long as they meet the legal requirements set by the Directive.

The Directive claims to be technology neutral, although important concepts (e.g. that of “advanced” or “qualified” electronic signature) are inherently linked to the security model of public-key infrastructure (PKI). On the other hand, the Directive addresses in several places functional / security requirements providing a good field for standardisation work^[119].

The development of standards to implement the functional requirements of the eSignature Directive is set out in explicit terms in the Directive’s text only with regard to two items: the creation of secure signature-creation devices and the use of trustworthy systems and products in the creation of qualified certificates by CSPs (article 3, §5). However, it is evident from the Directive’s wording that there is room for the implementation of standards in relation to other items relating to the electronic signature process as a whole or the creation of certificates.

3.6.5 Concern

The New Approach techniques have already proven their success in the ICT sector for matters that fall under the scope of the New Approach (e.g. R&TTE directive, EMC directive, LVD directive). The policy makers have tried to copy the success of the New Approach model, or certain techniques related to it, to areas that legally do not fall under the scope of the New Approach.

The advantage of this strategy is that the impact of the EU policy maker’s objectives on the standardisation activities could be broadened, by defining the basic legal principles along which lines standardisation activities could be initiated. The side-effect of these ad-hoc initiatives, is however, the creation of uncertainty as to the procedures (which are not completely the same as under the New Approach) and to the legal value of the created deliverables (which are not European Norms as under the New Approach).

A second concern is that initiatives to use the New Approach techniques outside of its scope have not been taken in a consistent matter. This shows again the pragmatic but fragmented approach taken by the EU policy makers in trying to get a grip on the changing demands of the ICT landscape.

Example – An example of this pragmatic but fragmented approach is the initiative to launch standardisation work in the electronic signature area. Looking for a possibility to reach its policy objectives in the most efficient way (in this case, creating an internal market for electronic signatures) it was decided to use more or less the same instruments as those applied by the New Approach (reference to standards making in legislation, mandating of ESOs, referencing of recognised standards in Official Journal) for an activity which does not form part of the New Approach.

¹¹⁸ Directive 1999/93/EC on a Community framework for electronic signatures, 13 December 1999, L 13 of 19 January 2000.

¹¹⁹ For instance, to determine the legal value of an electronic signature, service providers and end-users should verify whether the functional requirements of the “advanced” or “qualified” electronic signature have been fulfilled (e.g. use of qualified certificates and secure electronic-signature-creation devices). There is also a need to check if the CSP having issued the said certificate has utilised trustworthy and secure technology, etc. The organisational and functional requirements that CSPs and electronic signature products must fulfil are laid down in an exhaustive way in the Directive’s annexes.

In applying New Approach instruments to support legislation falling outside the scope of the New Approach (in this case, the eSignature directive 1999/93), the EU tried to broaden its influence on ICT standardisation issues, which traditionally would not have been part of the EU standardisation system. (Since on the one hand, New Approach mechanisms have been used, but on the other hand, the deliverables do not gain the same value as New Approach deliverables, the market of users and providers is uncertain as to the use of the standardisation results in the field of electronic signatures.

3.7 Introduction of other policy techniques

3.7.1 Description

To reach its policy objectives the EU has relied on methods other than standards setting. Examples include: non interference with standardisation activity and adopting a more laissez faire approach; funding the activities of specification providers other than the ESOs; participating in the standardisation activities of bodies that do not form part of the standardisation system, etc.

It would appear that EU policy has been to make use of these instruments for reaching its policy objectives when the standardisation system has failed to have an impact on the standardisation process.

Two examples of standardisation efforts outside of the standardisation system undertaken by the EU policy makers can be noted:

Referring to other specification providers – A number of legal texts recognise the existence of standardisation bodies or specification providers other than the ESOs, although in isolated cases only. These texts, in their final or draft version, demonstrate however the on-going tendency of the EU legislator to widen, little-by-little, the scope of standardisation bodies to include platforms other than the ESOs. For example, the EU Decision adopting a multi-annual Community action plan on the safe use of the Internet encourages industry self-regulation and standards in many ways. In particular, it underlines the need to promote consumer rating systems and filtering tools to better control information content. The Decision states as a reference example of such a system the platform for Internet content selection standard (PICS) that was launched by the international World Wide Web consortium with Community support^[120].

Funding of other specification providers – In recent years the emergence of EU R&D projects which support the implementation of standards set by other organisations is noteworthy. Examples include the policy initiatives and subsequent actions in support of IPv6 and the Recommendations concerning the implementation of WAI guidelines. These efforts have merit because they bring the European community of researchers, industrial researchers, etc., to a more advanced fora than the European ones, but they are pursued without a clear policy strategy.

3.7.2 Concern

EU policy has been to broaden its impact on standardisation activities by going outside of the formal standardisation system. The current EU ICT standardisation policy is indeed covering more activities than those undertaken within the formal EU standardisation system.

¹²⁰ EU Decision 278/1999/EC of 25 January 1999 adopting a multi-annual Community action plan on promoting safer use of the Internet by combating illegal and harmful content on global networks, L033 of 6/2/1999, Recital 15.

Although we understand that the current standardisation system does not always allow, nor is always the most efficient tool, for reaching the EU policy objectives, we are nevertheless concerned about the ad-hoc approach taken by the different Directorates-General towards the use of standards and specifications produced outside of the standardisation system. A further concern is the ad-hoc EU co-operation with specification providers other than the ESOs; an approach which is not always consistent with the EU's long-term standardisation policy. The idea of funding standardisation related research projects, for example, is not supported by European legislation or a common European policy towards ICT standardisation, and thus leaving too much room for diverging initiatives within the different directorates-general of the European Commission.

Furthermore, we are concerned about the value of the deliverables produced throughout these activities. As to the initiatives undertaken by EU policy makers to fund research projects in which non ESO standardisation organisations are also present, we understand that, by doing this, the EU is able to gain advantage from the standardisation work undertaken by non ESOs for reaching its policy objectives. The disadvantage of this approach, however, is that such standardisation work happens on the sideline, and does not gain the same value as standards being elaborated within the ESOs.

3.8 The current ICT standardisation policy: a picture

3.8.1 *A formal standardisation system completed by less formal policy techniques*

Based on the above descriptions of the activities undertaken by the EU policy makers and the ESOs, we can conclude that they have approached the ICT standardisation landscape in a double way, on the one hand by adapting the formal standardisation system, and on the other hand by performing ad-hoc initiatives that do not fall under the system but also have an impact on the standardisation efforts in the EU.

As a result, the current reality of the EU ICT standardisation policy can be described as covering both the formal standardisation system (i.e. an “institutional” part) and a whole range of loose activities relating to standardisation (i.e. an “informal” part).

Institutional part – The institutional part is based on the EU standardisation system. The EU has a direct impact on these standardisation initiatives, especially through its New Approach legislation. Although, the New Approach legislation cannot be applied to every sector, the EU decided to copy some of the elements of the New approach into other sectors. Examples of standardisation efforts supporting legislation such as the Electronic Signature Directive and the Electronic Invoice Directive, and initiatives supporting a particular policy such as the EU eHealth policy.

Informal part – The informal part is currently based on ad-hoc initiatives undertaken by different EU policy actors trying to maintain an impact on standardisation efforts outside of the formal standardisation system or even deciding that Europe should not have an impact on the standardisation efforts (hands-off approach). This part of the EU ICT standardisation policy ties up mainly with non-ESOs organisations and the EU influence is assured by supporting European participation in these bodies, funding R&D activities in which these bodies are also represented, referring in policy documents and legislation to standards created outside of the system, etc.

It can be described with the help of the following figure:

EU ICT Standardisation Landscape

EU POLICIES						
Some of them regulated (medical devices, R&TTE, data protection, eSign)			Some of them not regulated (competitiveness, eHealth, i2010)			
EU ICT STANDARDISATION POLICY						
EU Formal Standardisation System			EU informal Standardisation structure			
Direct impact			Indirect impact			No impact
98/34 New Approach	Ad-hoc initiatives: Eg. eSign eInvoice	eHealth eAccessibility	Participation in non ESO activities	funding R&D	Referring to existing non- ESO standards	Hands off
Support of legislation		Support of policy	Support of policy and legislation (e.g. IDABC, safer internet, ...)			
Players: ESOs and only to a limited extent non ESOs			Players: non ESOs and only to a limited extent ESOs			

The relevance of this figure is the global importance of activities listed in the lower grey area and the absence of a European clear ICT standardisation policy towards it.

3.8.2 Moving borderlines

Looking at ICT standardisation efforts being undertaken at an EU level, we notice that because of the cross-sectoral nature of ICT, standardisation efforts find themselves both in the regulated sector as in the non-regulated sector. Moreover, we notice that the borderline between the regulated sector and the non-regulated sector is moving. Indeed, some areas of ICT standardisation that used to fall in the non-regulated area, can shift into the regulated area because of changing policy objective of the European Union.

Example – One example that could be referred to is the use of RFID (Radio Frequency Identification). Until recently, standardisation efforts on RFID were undertaken outside of the regulated area (e.g. GS1, but also ISO/IEC JTC1). The European Union is, however, currently investigating the need to move RFID standardisation efforts into the regulated area because of concerns relating to data protection. As RFID standardisation has always been regarded by the European Union as an activity relating to the good functioning of the internal market (non-regulated sector), it looks likely that RFID standardisation should ensure compliance with the EU legal framework on data protection.

RFID is just one of many examples that are likely to grow in number over the coming years. For instance, the imposition of minimum requirements on quality of service that telecommunication services based on IP (i.e., VOIP) must have to be used in the Internal Market is another. The mechanisms the EU can have

in these cases are not trivial and must be clarified in the near future. For instance, in order to achieve this objective, the European Union does not necessarily need to shift the area from the non-regulated sector to the regulated sector. It could try to influence non-regulated standardisation efforts, e.g. by funding projects in the area of RFID standardisation or by being present in the non-regulated sector and actively participating in consortia standardisation efforts. This is hard to achieve as it needs prompt reaction to technical developments combined with clear objectives. It is probably another area where a European structure with a strong commitment from the Member States might exercise its powers.

4. SWOT analysis of the current EU ICT standardisation landscape

4.1 Strengths, Weaknesses, Opportunities, and Threats

The following table describes, in SWOT format, the issues that have been identified in sections 2 and 3 of this chapter. A SWOT analysis is a strategic planning tool used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in any situation requiring a decision.

More specifically, SWOTs in this case are:

- Strengths: attributes of the policy that are helpful to achieving the objective.
- Weaknesses: attributes of the policy that are harmful to achieving the objective.
- Opportunities: external conditions that are helpful to achieving the objective.
- Threats: external conditions that are harmful to achieving the objective.

4.2 Tabled SWOT analysis

<p>Strengths</p> <ul style="list-style-type: none"> ▪ Public interest taken into account ▪ NA is still innovative policy instrument ▪ ESOs as objective party ▪ New procedures adopted for adapting to ICT (e.g. Fast track) ▪ International agreements in place ▪ EU standards are a strong product (quality, public interest), also outside EU ▪ Legal basis for consultation platform (Sogits) 	<p>Weaknesses</p> <ul style="list-style-type: none"> ▪ Public interest procedures often hindering factor ▪ NA too much focussed on traditional sectors ▪ ESOs seen as not involved in economic reality ▪ New procedures do not go far enough ▪ International agreements limited in scope ▪ Too regional ▪ Marketing ▪ No coherent ICT standardisation policy (symptomatic approach) ▪ Legal framework not in line with reality ▪ SOGITS not convening
<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> ▪ ESOs willing to adapt ▪ All relevant participants on “speaking terms” ▪ Legal framework open for review ▪ EU standards becoming a global synonym for quality standards (taking account of many interests and not just those of industry . ▪ Easy revitalisation of SOGITS ▪ Opening SOGITS to other than NSBs 	<p>THREATS</p> <ul style="list-style-type: none"> ▪ Overtaken by specification providers ▪ Overtaken by speed ▪ Overtaken by other regions (esp. Asia) ▪ Becoming irrelevant

5. Intermediate Conclusion

5.1 New Approach model sufficiently armed to cover ICT?

5.1.1 Successful instrument

The advent of the New Approach clearly sets the dividing line between standards and legislative requirements. Legislation defines the legal requirements – whilst standardisation helps to implement these requirements and to prove conformity with the legislative imperatives. The driving force of standards-setting shifts from the national public authorities to market actors gathered together in *open and transparent* working environments in the ESOs. The management of the EU standardisation process becomes the responsibility of the three ESOs - CEN, CENELEC and ETSI. Specific principles underpin the adoption of harmonised standards and steer the “standards-making” process: *consensus-based* procedures which take place within *independent and recognised* standards organisations and which lead to the *voluntary adoption* of the standards produced.

Until recently, the basic structure of New Approach legislation has worked well for non-ICT sectors, and even ICT sectors (EMC, LVD, R&TTE directives) The New Approach can be viewed as the establishment of minimum legal requirements for the use of a technology that is loosely coupled with a voluntary technical standard developed through formal SDOs. It balances well the role of government and the private sector by using technical standards to create a “safe harbour” that business may use to presume compliance with requirements of a Directive.

The question arises, however, to what extent these principles can continue be used within an ICT context. In other words, if the New Approach is an adequate instrument for setting up standardisation activities in the ICT area.

5.1.2 Concerns

Clearly, standards can help policy makers in supporting their legislative policy objectives. It is a strategy that works well in sectors where physical products exist, which in turn can be prohibited and redrawn from the market (for safety, ecological, compliance, reasons etc.). It is also an *ex-ante* procedure: rules are established beforehand or can be easily adapted to changing events. However, an ICT product or service downloaded from a remote place might need a different approach.

ICT raises other types of attention points – Another ICT characteristic is the other type of attention points that may be raised. Unquestionably, a product that is scientifically proven to harm health is easily forbidden and taken off the market (for instance, small pieces in toys for infants are broadly recognized as dangerous and forbidden).

ICT products, on the other hand are more subject to scrutiny in terms of cultural values: user privacy concerns, lack of a *minimal* bandwidth to provide a telecommunications service, ethical values in games, etc. This poses a new set of problems: firstly, these concerns are not absolute and depend on global regions and sometimes on specific European countries; secondly, ICT products are pervasive and can be downloaded from anywhere; thirdly, ICT products can achieve popularity very quickly, becoming a *de facto* standard, that does not allow enough time to draw up legislation, or steal acting space for a late legislation.

Procedural issues – Further, some elements of the “New Approach” standardisation system raise, over time, certain concerns when applied to the ICT sector. The “New Approach” standards are basically related to

products and the need to ensure a level playing field for manufacturers and goods marketed in traditional sectors of the EU economy (machinery, construction products, toys, packaging, etc.). Member States' authority has not been completely eroded - standards are granted the status of EU norms once public enquiry and national requirements have been met. On the other hand, respect for in the New Approach procedures costs time, versatility and gradually results in a loss of trust from industrial participants who prefer swift standardisation mechanisms and ready-to-implement deliverables.

In other words, the emergence of new needs raises the question: is the *'New Approach rationale'* adequate to cope with the ICT sector. In the traditional standardisation approach, emphasis, until now, has been placed on products. However, *the service sector*, a major driving EU economic force, is equally subject to harmonisation requirements with which service providers have to comply. The need for *less time-consuming standardisation procedures* that would take place in less formal but flexible working platforms is therefore becoming increasingly popular especially in certain business sectors such as the ICT sector. Increasingly, those who set the standards prefer to opt for an efficient and speedy solution as opposed to the adoption of standards in which open and transparent procedures are applied.

International – In addition, societal and economical changes on an international scale, such as the proliferation of technology-integrated services and the globalisation of policies, production systems and markets, make the need to profile better the EU's standardisation system on the global arena obvious. Where once the focus of the New Approach was on the smooth functioning of the Single Market focus has now shifted towards the global market. The search for a *cohesive standardisation policy* capable of promoting "*the European interest*" is of critical importance to the EU economy.

5.2 Current approach: restricted to curing symptoms

It has already been noted that both EU and ESO policy is to adapt their rules and procedures to an ever changing ICT standardisation landscape. For ICT standardisation purposes, however, these efforts may not be enough to meet the overall policy objectives of the European Union..

5.2.1 Symptomatic approach

One of the main reasons why the current approach is only moderately successful, in our opinion, is that, whilst it may be pragmatic, it is also very fragmented.. Ad hoc initiatives have been taken to react to immediate concerns or symptoms without ensuring a long term approach and a proper embedment in the existing standardisation legal framework and relating policy. As a result of this organic, symptomatic approach, it has been difficult to gain a clear understanding of the EU ICT standardisation landscape.

We have noted the initiatives for structuring the different actions along the lines of a long term policy vision, such as the recent 2006 Action Plan for European Standardisation and the related 2006 ICT Standardisation Work Programme. The documents also identify the different actors (Directorates-General, ESOs) involved in taking up the actions. The proposed actions, especially the ones identified in the Work Programme, are very much in line with some of the challenges identified, such as the uptake of new technologies (e.g. NGN and Grid computing) and supporting European policy outside of the New Approach (e.g. eInclusion, eHealth).

Although we very much welcome these initiatives, we are of the opinion that this policy remains too focussed on restructuring efforts within the standardisation process. It does not consider other issues, such as the debate on a structured inclusion of standardisation participants other than ESOs within the standardisation

process. Nor is the debate on the difference in legal value of the standardisation deliverables given much thought. Examples of such a symptomatic and fragmented approach can be seen in relation to electronic signature standardisation initiatives, funding R&D programmes, and the manner in which participants are involved in the formal standardisation process.

Example: Electronic signatures – An example of this pragmatic but fragmented approach is standardisation work on electronic signatures. In a bid to create an efficient internal market for electronic signatures, it was decided to rely, more or less, on the same instruments that characterise the New Approach (for example, reference to standards making in legislation, mandating of ESOs, referencing of recognised standards in Official Journal). Yet electronic signatures is not an activity that falls within the scope of the New Approach. By using New Approach instruments in support of legislation falling outside of the scope of the New Approach (in this case, the eSignature Directive 1999/93), EU policy sought to broaden its influence on ICT standardisation, which historically would not have been part of the EU standardisation system. Thus, market end users and providers remain uncertain as to which electronic signatures standards they should rely on given that New Approach mechanisms have been used on the one hand, but the ensuing deliverables do not have the same value as New Approach deliverables on the other.

Example: funding of research projects – Another example of this pragmatic but fragmented approach is the initiatives undertaken by EU policy makers to fund research projects in which non ESO standardisation organisations are also present. In so doing, the EU is able to gain advantage from the standardisation work undertaken by non ESOs in order to reach its policy objectives. The disadvantage of this approach is that this kind of standardisation work happens on the sideline, and does not gain the same value as standards being elaborated within the ESOs. Moreover, the idea of funding standardisation related research projects is not supported by European legislation or a common European policy towards ICT standardisation, thus leaving too much room for diverging initiatives within the different directorates-general of the European Commission.

Example: stakeholders' involvement – A third example is the initiative to involve stakeholders in the formal standardisation process through a consultation round before issuing a mandate to the ESOs. The European Commission, when preparing a mandate for standardisation to support legislation, often asks the opinion of relevant stakeholders. This consultation round, however, is neither legally nor from a policy perspective obligatory and depends very much on the good will of the Commission official responsible for a given file, leaving too much space for a fragmented approach.

5.2.2 *Half-way solutions*

A second reason why we think the current EU ICT standardisation approach is not as successful as it should be, is that most past and present initiatives do not go far enough in finding an appropriate answer to the challenges imposed by the changing ICT landscape.

Example: ICTSB – By way of example, we refer to the establishment of the ICT Standards Board (ICTSB). Although this initiative is a very good first step for tackling some challenges imposed by ICT (the time issue and the market players issue), we feel that the time has now come to move the role and function of ICTSB on to a higher level. For the moment the ICTSB only acts as a co-ordination point and facilitates the exchange of views between the member organisations and with other interested parties. It only makes proposals and recommendations for consideration by the member organisations and other interest parties. The ICTSB does not, however, have the right to initiate standardisation activities having to always fall back on the three ESO's instead.

Example: CWA – A further example is the introduction of alternative standardisation deliverables such as CEN Workshop Agreements (CWA). We note that many issues arise such as the non existence of a clear definition of the legal value of CWAs and of the CWA concept. Furthermore, CWAs are not assigned the status of a formal standard (EN). Hence, in the case of CWAs the obligation placed upon CEN Members to withdraw pre-existing national standards conflicting with the adopted standards does not apply.

Example: Vienna agreement – A further example are the international agreements that allow standards developed by one body to be approved by parallel voting in both. The Vienna Agreement between CEN and ISO, for example, only concerns the development of European Norms. It is not sufficiently clear whether products other than ENs may be developed under the Vienna Agreement. One opinion is that it is generally possible to integrate other deliverables under the Vienna agreement but procedural guidance may be necessary on a case-by-case basis.

5.3 Summary

Faced with the challenges imposed by an ever changing ICT standardisation landscape, the current European standardisation system has provided a first response. However, until now, this has been done on a fragmented basis and under pressure from the new reality.

Indeed, although it has been the policy of both the EU and ESO to undertake a number of initiatives in response to such challenges, they have led to a scattered range of often halfway measures. Moreover, some of the initiatives are missing a legal basis, and more specifically, are not supported by Directive 98/34 and Council Decision 87/95. In other words, the current legal framework has not adapted to the current practices that have been legitimately undertaken by the EU policy makers and ESOs in their need to adapt to the changing demands of reality.

We think that an ICT standardisation policy based on pragmatic but fragmented, and on occasion half-way solutions, that are not always covered by a legal basis, is not the best basis for building a strong and competitive European ICT standardisation policy. We, therefore, think that, even after the extensive and valuable work already carried out by the policy makers and ESOs, some challenges still remain.

PART III. Challenges for the EU ICT standardisation policy

1. Introduction

1.1 Objective of the study

The objective of this study is to identify how the EU ICT standardisation policy could better accommodate the EU policy objectives, especially in relation to the Lisbon agenda. After an analysis of the ICT standardisation landscape including the EU's response to challenges imposed by the changing ICT landscape (Part II), we now identify the challenges that still remain and that may hamper the EU ICT standardisation policy to remain a successful policy instrument also for the future.

This identification of issues was based on a broad survey of relevant participants through questionnaires, by interviews conducted with individuals that are regarded as experts in their field and by the participation in three workshops organised by the European Commission in which relevant participants could proactively discuss and come forward with their ideas and concerns.

1.2 Current landscape

Characteristics of ICT – As seen above, the ever changing ICT landscape is characterised by some very specific elements that oblige actors in the field of standardisation to react and assess their position towards ICT standardisation. The characteristics of the current and future ICT landscape could be summarized as follows: globalisation of products and services, diversity of market players, software-oriented, cross-sectoral, and ubiquity.

Characteristics of ICT Standardisation – As to the standardisation area, as a result of the specificities of this ICT landscape, we have been witnessing a rise of de facto standards, the creation of standards outside of formal standardisation bodies, the increase of standardisation activities in Asian countries and the rise of non-formal ICT standardisation bodies with a global reach (IETF, W3C, OASIS, etc.).

Policy makers to take account of changing landscapes – For an actor in the field of standardisation to keep an influential role in ICT standardisation, it should ensure taking account of the current and future characteristics of the ICT landscape and the current and future characteristics of the standards development in the sector.

Within a EU context, EU policy makers have been using standardisation as one of the instruments to reach their policy objectives. For them to keep benefiting the most from this policy instrument, they ought to ensure that their standardisation policy takes account of the new challenges imposed by the current and future ICT landscape.

EU response to changing landscapes – ESOs together with European policy makers have already intensively been engaged in adapting their policies and procedures to changing demands. Examples of these efforts include the use of fast track procedures, the involvement of different stakeholders in the standardisation process, the installation of a dedicated platform (ICTSB), the delegation of representatives to Asian countries,

the translation of standards developed by non-formal standardisation organisations into ESO standards, and the marketing of European standards at the international level.

Is the EU response sufficient? – However, it is generally felt that these efforts do not sufficiently cover the demands of European policymakers for ensuring that European policy objectives can indeed be reached with the help of ICT standardisation. Current EU responses have, in our opinion, been made on too ad hoc a basis, and they miss a structured approach. Furthermore, in our view the initiatives that have been undertaken by EU policy makers do not go far enough. By way of example, we refer to the lower legal value adhered to deliverables that passed the fast track. This track is typically being used for ICT standardisation activities and results in ICT standardisation deliverables, i.e. CWAs, that are legal speaking of lower value than ENs.

1.3 Remaining challenges

The following issues have been identified as the most pertinent challenges for EU standardisation policy in the field of ICT. These issues are further reviewed in the next chapters:

- **Regional character:** EU ICT standardisation policy is being confronted with different challenges as to their role and influence on a global market. A first challenge is to have EU standardisation initiatives take stock of standardisation processes and deliverables created outside of the EU standardisation system. A second challenge is to marry the regional policy objectives of the EU with the global nature of ICT standards. A third challenge is to find ways of creating global acceptance and use of EU standards.
- **Mandating:** The EU ICT standardisation legal framework currently does not allow mandates to be issued to non-ESOs. Consequently EU policy maker may risk not gaining advantage from the know-how and expertise that has already been built up outside of the ESO community, nor influence the latter's activity towards European interests.
- **Standardisation organisations:** EU ICT standardisation does not sufficiently take stock of standards developed outside of the standardisation system. The procedures for incorporating these standards into the EU standardisation are being regarded as cumbersome and not friendly towards the original standards developing organisation.
- **ICT Users:** Although consumers and SMEs are formally represented in the EU standardisation process, it is felt that because of the huge impact of ICT on the user (consumer/SME), the representation of these stakeholders is currently not sufficient. When discussing user representation, the level of involvement should be balanced against the specificity of the user needs (direct/indirect).
- **ICT producers:** SMEs as ICT producers, are not well represented in the ICT standardisation process whereas the European Union is built on the SME market. SMEs should be encouraged to engage in standardisation activities. Here too, the level of involvement should however be balanced against the SME-producer needs. Standards might also be defined taking into consideration the size of SMEs (by for instance, defining sub-systems that can be built by smaller actors than monolithic systems), and the general access to standards should be facilitated taking into account the specific nature of SMEs.
- **R&D:** Research and development in Europe does not pay sufficient attention to a future standardisation track, thus risking a delay in bringing the standards to the market (standardisation gap) and hence creating a competitiveness issue.
- **Exploitation of EU ICT standards:** Although many success stories relating to the use and adoption of EU standards can be noted, it is true that in the ICT sector many existing EU standards have not been widely taken up by the market. The most widely implemented ICT standards have been drafted by non-formal standardisation organisations.

- **Transparency:** The current EU ICT standardisation landscape is a rather blurred landscape without clear borderlines. The feedback received through the survey of relevant players and the discussions between the participating parties have indeed shown that there is a lot of confusion relating to the standardisation processes, procedures and deliverables. This lack of clarity is due to the organic response by the EU policy makers and ESOs towards the challenges imposed by the ICT landscape. As a result of this organic approach, it is difficult to gain a clear understanding of the EU ICT standardisation landscape.

2. A regional policy in a global context

2.1 What is the issue?

The EU ICT standardisation policy is being confronted with different challenges as to its role and influence on a global market.

Firstly, in order to have successful EU standards (i.e. standards that are adopted by the market), the EU standardisation efforts should take into account standardisation initiatives taking place on a global level. EU standards that are incompatible or inconsistent with technology solutions used in other parts of the world, increase inefficiency and ultimately lead to fragmentation in the availability of key technology advancements. The challenge is to make sure EU standardisation initiatives can take stock of standardisation processes and deliverables created outside of the EU standardisation system.

Secondly, EU policy makers would like to ensure their policy objectives, which are based on cultural values and traditions (some of them regarded as typical “European” values, such as data protection, and consumer protection), are substantiated in the EU standards. The challenge is to marry the regional policy objectives of the EU with the global nature of ICT standards.

Thirdly, EU standards which penetrate at the global level are believed to improve competitive advantage for European businesses. EU policymakers are therefore interested in making sure that an uptake of EU elaborated standards takes place at the global level. The challenge is to find ways to create a global acceptance and use of EU standards.

2.2 ICT Standardisation is a global matter

Given that ICT and its market are global, the EU ICT standards have to prove their capacities in the international arena. While at the EU Internal Market, “successful” standards mean deliverables capable of attaining a harmonisation objective by decreasing the burden of regulation, what matters at the international scene is the capacity of EU standards to become “global referrals” for international trade. If EU standards are not compatible or are inconsistent with technology solutions used in other parts of the world, EU standards would only remain regional standards decreasing their success and efficiency on a global market. This would ultimately lead to a fragmentation in the availability of key technology advancements and discourage the competitiveness of the European industry.

The New Approach legislation, facing mainly issues concerned with protection of health, security and safety, is very much based on setting the characteristics a product must have to afford free movement inside the European market. New products European users will use, can be deployed and used at global scale and this new emerging model must be considered in legislation.

Many initiatives have already been taken for improving international cooperation between standards setting

organisations. These initiatives have been enshrined in European and international legislative acts and policy documents.

2.2.1 Council Decision 87/95

The pre-eminence of international standards in the information technology and telecommunications area is already confirmed by the Council Decision 87/95/EEC.^[121] The Decision sets out clearly that standards-setting work undertaken at European level must take into account international standardisation activities. Indeed, article 2 of the Decision explicitly states that the ESOs “shall base their work on international standards, draft international standards or international technical specifications in telecommunications.” It continues by stating that “Where an international standard, draft international standard or international technical specification in telecommunications offers clear provisions allowing its uniform application, these provisions will be adopted unaltered in the European standard, European prestandard, or telecommunication functional specification. Only where such clear provisions do not exist in the international standard, draft international standard or international technical specification in telecommunications, the European standard, European prestandard, or telecommunication functional specification will be written to clarify or, where necessary, supplement the international standard, draft international standard or international technical specification in telecommunications while avoiding divergence from it.” The Decision also states in the same article that “the same bodies shall be invited to prepare technical specifications which may form the basis of European standards or European prestandards in the absence of, or as a contribution to the production of, agreed international standards for the exchange of information and data and systems interoperability.”

The principles laid out in the Council Decision of 1987 fully align with the international commitments that the European Union has taken in 1995 through the WTO Agreement on Technical Barriers to Trade.^[122] This Agreement requires of its signatories inter alia that technical regulations and international standards should be developed and implemented in a non-discriminatory manner, and without creating unnecessary obstacles to trade^[123]. It also recommends the recourse to international standards wherever possible when drafting technical regulations.

According to the agreement, WTO members are obliged to use existing international standards as a basis for their technical regulations, except when such international standards would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued.

The substantive provisions of the Code of Good Practice set out the following rules:

- (a) Standards should not be developed with a view to creating unnecessary obstacles to trade (sub E).
- (b) International standards that have been adopted or are in the course of development should be used as basis of any further/similar standardisation work initiated by any regional or national standardisation bodies (sub F).

¹²¹ See PART II.3.1 “The Council Decision on ICT standardisation” on page 37.

¹²² Code of Good Practice for the Preparation, Adoption and Application of Standards, Annex 3 to WTO Agreement. The Agreement on Technical Barriers to Trade - also known as the TBT Agreement is an international treaty of the World Trade Organization. It was negotiated during the Uruguay Round of the General Agreement on Tariffs and Trade, and entered into force with the establishment of the WTO at the beginning of 1995.

¹²³ See in this regard, Commission’s Communication on the role of European standardisation in the framework of European policies and legislation, COM (2004) 674 final, 18.10.04, p. 6.

- (c) Regional standardisation organisations shall participate as much as their resources permit so, to the standardisation programmes carried out by the international standards-setting organisations (sub G).
- (d) Any duplication of, or overlap with standardisation work undertaken by other signatories to the agreement should be avoided (sub H).

2.2.2 Cooperative agreements

The ESOs have also concluded a set of agreements with their counterparts at the international level (ISO, IEC and ITU) to avoid duplication and speed up standardisation work. These agreements establish the systematic, legal framework of EU standardisation policy to take over international standards and/or to contribute to the international standards making process. They provide the possibility to develop standards in one body and to approve them by parallel voting in both.

Such agreements allow for joint programmes and joint publications of standards (IS/ENs) between the signatories. Actually, these agreements work both ways: they recognise the primacy of international standards, but they also recognise that particular needs (of the Single European Market for example) might require the development of standards for which a need has not been recognised at the international level. This happens especially if international standards are not considered appropriate because they do not meet the objectives of the EU regulation or merely because international standards do not yet exist (some examples are Mobile, TETRA, DVB, DECT, legal interception, etc).

Reference examples of such agreements are: a) the Vienna Agreement between CEN and ISO; b) the Dresden agreement between CENELEC and IEC and c) the MoU Telecommunications Sector between ETSI and ITU-T.

Vienna Agreement (ISO – CEN) – Given the primacy of international standards, the lead in the standardisation work to be carried out is in principle assigned to an ISO committee. Nevertheless, a work item may directly be entrusted to a CEN committee in cases of “mandated” standards that are requested for implementation of EU laws, generally directives, if certain conditions are met. There must in particular be sufficient evidence to demonstrate that the ISO committee cannot fulfil the content and timeframe required for implementation of the law in question. It is noteworthy that a European mandate does not necessary “open the door” for CEN to take the lead of the standardisation work required. It simply means that if ISO takes on the work, the standardisation activity must be completed in time to meet the European requirements. The agreement discourages European members of parallel ISO-CEN committees, from moving a specific work to CEN alone, if the ISO committee can meet the European needs of content and timeliness (as far as an EU law is concerned).

The above rule concerns primarily the development of European Norms. It is not sufficiently clear whether other products than ENs may be developed under the Vienna agreement. One opinion is that it is generally possible to integrate other deliverables under the Vienna agreement but procedural guidance may be necessary on a case-by-case basis.

Dresden Agreement (IEC – CENELEC) – When the need for new work items arises with CENELEC (incl. the revision of existing standards), CENELEC has to ascertain first whether the IEC can undertake the work. Standardisation activities that have primarily an EU origin (e.g. in response to the requirements of an EC Directive) shall be submitted to IEC if at least 5 National Committees are willing actively to participate in the IEC’s work, unless IEC is unable to carry out the required standardisation work according to CENELEC’s planning requirements.

MoU Telecommunications Sector (ETSI - ITU-T) – This agreement concerns mainly the mutual use of deliverables and their availability to the counter-party according to the IPR rules stipulated in the MoU. Other provisions refer to mutual access to the organisations’ work programmes or the exchange of experts.

Cooperative agreements with non-institutionalised bodies – ETSI has signed a number of co-operation agreements and memoranda of understanding with external bodies that are non-formal standardisation organisations, such as fora and consortia, R&D bodies and other specification providers (e.g. Agreement on the co-operation between ECMA (currently, ECMA International) and ETSI on standardisation in the field of telecommunications). The purpose of these agreements is typically to cover the development and promulgation of European telecommunications standards and other deliverables on an agreed joint work programme, and the promotion of their acceptance by world-wide standardisation bodies.

The ETSI – ECMA (International) agreement, for example, states that its purpose is:

- to define a process for developing a joint programme of work;
- to ensure that there is synergy both at European and global level between standards developed for the public and private/corporate domain;
- to enable experts to participate in the agreed joint programme of work, via either ETSI or ECMA;
- to avoid each organisation working separately in the same area;
- to ensure standards and other deliverables are produced in the organisation with the greater competence;
- to help ECMA standards and other deliverables to become European Telecommunications standards and other deliverables via ETSI, where appropriate; and
- to help ETSI standards and other deliverables to become international standards via ECMA, where appropriate.

ETSI seems to be the only ESO having entered into cooperation agreements with other non-formal standardisation organisations and specification providers (consortia and fora). The other ESOs restrict their cooperation to collaboration agreements with industry and public interest stakeholders.^[124]

Furthermore, the other ESOs seem not to allow the same degree of cooperation as the ETSI co-operation agreements. CENELEC for example in its conditions provides for cooperation agreements with organizations interested in supporting and contributing to the European electrotechnical standardization. The cooperation is however, limited to “*advice, suggestions and proposals with respect to CENELEC activities*”. Also, “*the copyright of CENELEC publications, whatever their origin, remains the exclusive property of the CENELEC members*”.^[125] CEN has the instrument of Associate Members. These organisations undertake to promote CEN and European standardization., they participate in the General Assembly (without voting rights), sit on the Administrative Board when policy matters are being discussed, sit on the Technical Board and any other technical body and receive all relevant documentation and information, including draft standards.^[126] The list of Associate Members does currently not contain any non formal SDO or specification provider.

¹²⁴ In practice, an ESO like CEN collaborates or liaises on a case by case basis with non-formal standardisation organisations and specification providers (e.g. OASIS, W3C, Dublin Core), and CWAs do cross-refer to their deliverables.

¹²⁵ CENELEC Guide n° 14 The concept of Cooperation Agreements, articles 2 and 5. A list of cooperating organisations can be found on <http://www.cenelec.org> (cooperating organisations).

¹²⁶ <http://www.cen.eu> (members).

2.2.3 Concerns

Agreements between ESOs and other international standardisation organisations would seem to work efficiently, allowing for the transposition of international standards into European Norms and the uptake of European standards on a more global level. Nevertheless, as will be pointed out below, specific problems, such as maintainability, may become hard to manage.

In the ICT area, important standards-setting initiatives take place outside the scope of international standards bodies, often undertaken by organisations acting on a global level with an important market impact (e.g. W3C, IETF, OASIS). Apart from ETSI, however, no other ESO has entered into agreements with non-formal standardisation organisations. The agreements and rules typically only express rights and obligations enshrined into the “institution-based” standards-setting system in Europe and worldwide.

If we are to underpin our standards structure in a world that is moving to commercially based global fora, then we need to look to seeding mechanisms that will help all the bodies work together more easily, and also allow public authorities to easily review what is going on. We should thus look to stimulating light and agile mechanisms to allow standards bodies, industry and appropriate organisations and authorities to meet and resolve issues. This would underpin both the European standards structure and create alliances that would concentrate and specialise the work under certain topics. It would also minimize the number of organisations working independently and with duplication.

The EU policy maker could for example ponder other ESOs entering into ETSI-like agreements with non formal standardisation bodies, ensuring a good synergy between the activities of formal and informal standardisation organisations.

2.3 The priorities of the EU regional standardisation policy vs. the global dimension of standards

2.3.1 Description

Often, standardisation efforts are being based on policy objectives or practical needs, having a regional character. These efforts do not necessarily have a global impact or are globally relevant.

Examples in the European Union are those standards that are needed to support cross-border business or services within the EEA, and thus to remove or prevent barriers to trade (eg European electronic invoice, eAccessibility). Other EU examples are standards that are needed in support of European regulation as a subset of the single market objective (eg Electronic Fee Collection), standards for end-users taking into account cultural, social, moral and linguistic issues (eg Nordic subset of UBL), or standards taking into account of national requirements (eg eHealth).

International standardisation organisations would not necessarily be able or willing to initiate standardisation activities stemming from regional demands, or take into account regional characteristics in on-going standardisation activities. It is also relevant to note that the timing to initiate these initiatives will be much earlier in Europe (given its characteristics) than worldwide.

Also, the closer one gets to application standards (the “e” environment – eBusiness, eHealth, eGovernment, eLearning, eAccessibility) the more regional work is needed to complement the global work. Including every local variant in the main standard becomes excessive and cumbersome for a global body – and is therefore better done by a local body in each region.

It has already been noted that the international agreements the ESO’s have entered into, allow deviations

from the international standardisation work on an exceptional basis only and must be justified in a transparent way. For example, the Vienna agreement recognises that standards setting may be entrusted to CEN if there are particular “European” needs, in particular in support of the legislative framework. On the other hand, ISO’s aim is to develop standards that are relevant globally which means that they need to be consistent with (or at least not contradictory to) national and regional legislation around the world. “Unfortunately, because there are different approaches to regulation and reference to standards in different parts of the world, this may not always be possible” ^[127].

2.3.2 Concerns

We would like to stress the regional character of standardisation when it comes to safeguarding typical European values and characteristics. Leaving standardisation work to global organisations only, whether they are institutionalised or not, would cause the risk of these particularities not to be taken into account.

Therefore we would argue there will always be a clear need for bodies that have a tangible European edge, i.e. regional bodies such as ESOs. These regional bodies should ensure the European voice being heard on a global level whenever necessary and relevant.

At the same time, when drafting European standards or influencing global standardisation efforts, the global applicability of standards should always be taken into account, especially from an interoperability perspective.

Furthermore, it should be investigated which areas for standardisation are indeed in need of a typical European approach, and which are not. The actions should be carefully chosen, based on a classification taking into account the subject for standardisation, the type of activity (standards development, the standards use and the clarification of an existing standard), and the bodies that generate these standards (Europe based, centered outside Europe, or with work spread across the globe).

2.4 Pushing EU standards to a global level

2.4.1 Description

Market adoption of EU standards on a global level is believed to improve competitive advantage for European businesses. EU policymakers are therefore interested in ensuring global uptake of EU elaborated standards. An example of a successful move from the regional scene to the global scene is the GSM standard.

A successful solution to internal market challenges, could very well have the necessary characteristics to be adopted worldwide. This is even more true for regions which lack such solution. Consider hypothetically China and eHealth. Were a solution to become popular in Europe, it could be followed by China, for instance. By contrast, a European failure to get into a harmonised system, will lead to other regions developing it first.

There are typically two possibilities for promoting a widespread adoption of EU standards: First, by marketing the use of EU standards outside of Europe (direct approach). Second, by having EU standards transposed by other standardisation organisations into globally accepted standards (e.g. ISO) or into regionally accepted standards (e.g. SAC in China).

¹²⁷ Quoted from Q&A part of the agreement.

2.4.2 Concerns

Currently there already are agreements between the ESOs and different standardisation organisations for reciprocal adoption of standards. There also are marketing activities around the adoption of EU standards outside of Europe. Still, we would argue that more work could be done in promoting a wide adoption of EU standards.

A strategy should be developed identifying standards with potential for global success, based on various criteria (uniqueness, interoperability, advantage for EU industry, ...). Efforts should be focussed on standards with a high score only.

This exercise of drafting a score board could be done by identifying the strengths of the European industry. As Europe cannot take on the world at everything this suggests that we need to decide what our expertises are, and focus on these.

2.5 Conclusions and recommendations

ICT standardisation takes place in a global environment. Not adapting to the global environment by actively participating in global standardisation activities, may cause the European standardisation work, including its safeguards, to become irrelevant. We, therefore, argue that the EU ICT standardisation policy should contain a (or revise its) strategy relating to its impact on global standardisation.

Focus on regional whilst not forgetting the global character – The strategy should take into account that there is a need to stress the regional character of standardisation when it comes to safeguarding typical European values, but that it would be unrealistic to try to dominate global standardisation processes. Although the aim should not be to try to convince the world to adopt standards which focus on regional issues, it should at the same time be ensured that the regional interests are not forgotten in global standardisation initiatives. ESOs representing these regional efforts would arguably play a crucial role in this exercise. Other standards, however, which are perhaps less focussed on European values or characteristics but which could assist the competitiveness of European industry should be promoted at the global level (as it has been done for GSM, for instance).

Broaden the co-operation agreements – Inducement should not be limited to other institutionalised standardisation organisations (such as ISO, IEC, etc), but also by influencing other non formal bodies acting globally (W3C, OASIS, IETF). The EU policy maker could for example consider other ESOs entering into ETSI-like agreements with non formal standardisation bodies and specification providers. This would ensure synergy between the activities of all relevant standardisation participants.

Classification – Part of the strategy should also be to draft a classification covering the different reasons for standardisation and the level (national, regional, global) at which standardisation would have to take place. The classification should identify which European standards could be potential global successes, based on various criteria (uniqueness, interoperability, advantage for EU industry, ...) . Efforts for upgrading to a global level should be focussed on standards with a high score.

3. Mandates in an EU context

3.1 What is the issue?

The use of mandates is a powerful tool in the possession of the EU policy maker to support its legislative or policy objectives. By issuing a mandate, the EU policy maker is able to initiate or to influence the standardisation process on a certain topic. The rules and procedures on using mandates find their basis in Directive 98/34 and in Council Decision 87/95.

The concept of mandates as such is currently not being questioned by the policymakers nor the other participants. Different issues arise however relating to the mandating process. More specifically, the fact that a mandate can only be directed towards the three ESO's would seem objectionable. Currently it is indeed not possible to issue mandates for standardisation work directly to other standardisation organisations than ESOs. By not being able to mandate non ESOs, EU policy misses out on the opportunity to gain advantage from the know-how and expertise that has already been built up outside of the ESO community.

3.2 Definition and legal basis

In principle, the European Commission allocates standards-setting work to standardisation organisations through issuing mandates. The mandate actually represents *a request* by the policy maker to the relevant technical bodies to carry out standardisation tasks. Such tasks may consist of: (1) mandates to check the feasibility of standardisation, (2) mandates requesting the elaboration of a standardisation programme, and (3) mandates for the development and adoption of European standards.

Under the New Approach, the mandate has taken the form of *an order/invitation* that the Commission addresses to the competent European standardisation bodies (ESOs), being CEN, CENELEC and ETSI, for the adoption of harmonised standards.

The mandates as tools of standardisation work are formally recognised in law. The Council's New Approach Resolution has set out that "*the quality of harmonised standards must be ensured by standardisation mandates, conferred by the Commission, the execution of which must conform to the general guidelines which have been the subject of agreement between the Commission and the European standardisation organisations*"^[128].

The "Transparency" Directive spells out the core procedural steps of the mandates' publication: a) opinion of the 98/34 Consultative committee before the issuance of mandates (article 6 §3); b) obligation of standstill on Member States from any standardisation work that risks to conflict with or prevent the execution of the mandate at a European level (article 4 §1d). It is noteworthy that although no legal obligation exists, draft mandates are often drawn up by the Commission services through a process of consultation with a wide group of stakeholders before they are being sent to the 98/34 committee.

In legal terms, the mandate represents a mechanism to delimit areas of competences between the regulator and standards bodies. By using the mandate request, the Commission (and via the Committee, national public authorities) asks the ESOs to draw up technical specifications that meet the requirements addressed in legislation. Mandates reflect the interface between determining legislation/policies and standards-making activities. They are mechanisms to move the standardisation communities, but they are not legal acts per se. Thus, in order to determine whether a standard developed on the basis of a mandate actually complies with

¹²⁸ Council Resolution of 7 May 1985, Annex II, point 4.

the legal requirement, one should not look back at the terms of the mandate but at the provisions of the regulatory act. Thus, mandates do not replace the law nor shall be regarded as the correct interpretation of the legal requirements.

In practical terms, the content of mandates specifies the expectations of the regulator towards the ESOs. It indicates as precisely as possible what is being asked of the standards organisations and the legal framework within which the standards have to be presented. The ESOs are not obliged to accept the mandate. Thus, they cannot be bound by a mandate as long as they have not accepted it. But once they accept the mandate, the ESOs undertake a commitment to complete by themselves or their members the work required within the agreed time-limits. In practice, a mandate is almost never rejected by the ESOs.^[129]

In operational terms, after its acceptance, the mandate is considered as a contract between the EC and/or EFTA and ESOs and is thus binding on both parties. As a consequence the deadlines set in the mandate for the submission of deliverables are contractually binding and must be respected.

3.3 Mandates in the ICT area

The use of mandates in the ICT area is legitimised by Council Decision 87/95/EC *on standardisation in the field of information technology and telecommunications*. Article 4 of the Decision provides that the Commission *shall entrust* the technical work to the competent European standards organisations or specialised technical bodies *requesting* them, if necessary, to draw up European standards or functional specifications. (It is relevant to note that the Council Decision extended the ability to issue a mandate to “specialised technical bodies”, to include CEPT, which was not an ESO at that time.) Similarly vis-à-vis the “Transparency” Directive, the Decision lays down the basic procedural steps that should be followed for issuing the mandate (e.g. consultation of the so-called SOGITS committee and the 98/34 Standing Committee).

All mandates currently issued in the ICT area are addressed exclusively to the three ESOs (CEN, CENELEC and ETSI).

In practice, the usefulness of applying a mandate procedure is decided by the European Commission services, more specifically the services requiring standards in co-operation with the unit responsible for ICT standardisation. The draft mandate is prepared by the Commission services. Prior to the submission to Member States, the draft is generally discussed with the ESOs in view of an agreement. When the mandate covers a new domain, the request issued by the mandate is rather general:

1. analyse the political context from the perspective of the possible role of standardisation;
2. identify the already existing initiatives on regional, EU, national and international level in order to avoid duplication and in order to identify whether the existing specifications satisfy the EU needs;
3. identify possible standardisation gaps; and
4. issue recommendations for standardisation work.

These four questions generally constitute part 1 of the mandate, which is followed by a Member States consultation. The European Commission, indeed, needs to consult the Member States before mandating the technical work to the competent ESOs (article 4 of the Council Decision 87/95). This consultation is typically done via the SOGITS committee. The Committee currently only consists of representatives appointed by the Member States, who may however call upon the assistance of experts or advisers. Its chairman shall

¹²⁹ One example is the refusal to accept the mandate on standardisation work related to PABX.

be a representative of the Commission. In reality, however, this committee has not been convened for several years. In part 2, the mandate requests the preparation of a technical Work Programme (WP) followed by the execution of the WP.

Mandates have for instance been issued to allocate specific standardisation tasks to the ESOs on data protection, electronic signatures, on digital TV and interactive services, in the field of harmonised standards for the implementation of the R&TTE Directive or in the domain of learning and training technologies and educational multimedia software. On the other hand, standardisation requirements arising from framework programmes such as eEurope also serve as a legal basis for mandates^[130].

A mandate may have as a legal basis not only an already voted and formal act (such as a Directive) but also the preparatory document before final adoption (e.g. a draft Directive). In this sense, a common position (COM) can already justify the beginning of the standardisation work under a mandate. This is particularly important for fast-paced business sectors, like ICT, whereby law succeeds technological developments.

Under the New Approach, the deliverables of standardisation work described in a mandate are European norms (ENs) or ETSI standards (ESs). However, in the ICT standardisation practice, mandates have been used for elaboration of deliverables other than ENs and ESs.

3.4 Concerns

3.4.1 The ESO exclusiveness

As set out above, mandates in the ICT area assign standardisation work exclusively to the three ESOs. The fact that non-formal SDOs cannot be directly mandated is often viewed with frustration by industry, for different reasons:

- **Financial:** The limitation of mandates to the ESOs has a financial dimension. In principle, mandates justify the financial support of the bodies entrusted with the required standardisation tasks. Limiting mandated standardisation work to the ESOs means in practice that only the ESOs may benefit from the Commission funds that can be used to execute the mandate.
- **No reference:** Non-formal SDOs are often frustrated that their work is used as a basis for a European deliverable but that no reference is being made to their authorship.
- **Double work:** Often similar work has already been carried within a non-formal SDO but this work is not used within the ESOs.
- **No impact:** Within the group of non-formal SDOs it is felt that only a small group of experts is asked to participate whereas a framework would be necessary for working more efficiently. The stakeholders are frustrated that their input is restricted to consultation, but without having access to the text drafting.

Putting in perspective – Although the frustration of the non-formal SDO's and specification providers may be genuine, the assumptions should be a little bit adjusted. For example, as to the finance issue, it should be noted that mandates do not automatically involve financial support. There are indeed mandates without funding, just as there is funding without mandates. As to the issue of authorship, it is indeed correct that all deliverables need to be revamped into a European deliverable (EN, CWA, etc.) and that it is not possible to

¹³⁰ The entire list of mandates issued to ESOs can be found in DG Enterprise homepage at: http://ec.europa.eu/enterprise/standards_policy/mandates/index.htm

keep the original name and author of the standard. It should however be noted that ETSI has entered into different co-operation agreements in which it is stated that reference will be made to the non formal SDO as the originator of the deliverable. As to the impact issue, although it is indeed true that the legal framework does not allow a direct mandate to be issued to other organisations, this does however not mean that other organisations or stakeholders cannot get involved in the standardisation process. In most mandates there is, for example, a clause on cooperation (e.g. to organise an open workshop).

Opinion – Still, in our view current ICT standardisation policy could take the work of the non-formal SDOs and specification providers more into account than this is currently the case. At this moment, these actors are only indirectly involved in the standardisation work and their efforts seem not be valued at the same level as the ESOs.

We would argue that not using this expertise and know-how does not advance the EU policy makers objectives. Therefore, knowing that mandates are an important tool for policy makers to drive standardisation efforts, the tool could be improved by getting participants more directly involved in the standardisation work, not only at the consultation level but even on the standards creation level.

3.4.2 Unclear legal basis

As commented briefly above, there is arguably no clear legal basis requiring the use of mandates in all policy and regulatory areas, apart from the New Approach. Furthermore, there would not seem to be a legal obligation for the European Commission to involve the stakeholders in the consultation procedure.

Reach of mandates unclear – In the European Commission’s document *Role, preparation and monitoring of standardisation mandates under the New Approach*, it is argued that *any type of publication* by the ESOs may be the subject of a standardisation mandate if deliverables other than ENs/ESs better suit the needs connected with specific sectors^[131]. On this point, the document concludes that, *for the sake of clarity, it may be useful to draw up a mandate for each request from the public authorities to the ESOs for normative documents (including the new types of deliverables)*. This last sentence would seem to imply (as is our view) that there is no clear legal basis imposing the use of mandates (and of all the corollary procedure of Committee consultations), in view of the preparation of other standardisation outputs and not formal European standards^[132]. In our view, this conclusion could also have been drawn from the interpretation of Decision 87/95/EC.

It should, therefore, be reviewed whether the mandate mechanism has to be used in a selective way in the light of the needs of the specific policy area. In the affirmative, there is a need to define the criteria that will determine the kind of standardisation work that must be subject to the “mandates” procedure. Furthermore, there would then also be a need to clarify the types of deliverables that must be addressed through the “mandates” procedure.

No legal obligation to involve stakeholders – The consultation procedures of the stakeholders are not based on a legal obligation but rather depend solely on the willingness of the responsible issuer of the mandate. We would question whether this practice is sufficient to tackle the challenges imposed by the current and future ICT landscape.

¹³¹ Document n°. SOGS N 404 of 24 April 2001. Although the document deals mainly with mandates under the New Approach Directives, it states that it can serve as a guide for mandates in other fields relating to legislation outside the New Approach and in support of Community policies outside Community legislation (p. 3).

¹³² Idem, pp. 9-10.

It is felt that the European policy makers could more efficiently use standardisation as a tool if all involved participants (European Commission, Member States, Industry, Consumer organisations, and standardisation bodies) could come to an agreement before the mandate is issued, that the proposed standardisation effort is needed and will improve the observed deficiencies. This goal can be achieved with a timely involvement of the interested parties on European and national levels.

3.5 Conclusions and recommendations

The mandating system is a strong policy instrument in the hands of the European Commission. Currently, however, the mandating system is restricted in its application (New Approach) and its procedures are no longer in line with the ICT landscape (only consultation of national representatives; only direct involvement of ESOs for standards setting). The mandating system should allow for more flexibility if it wants to remain a strong policy instrument.

Whilst in practice, mandates are also being used outside of the New Approach model, and stakeholders are being consulted, the legal system itself (more specifically Council Decision 87/95) has not created this possibility. The fact that the current practices are not being backed up by the law creates legal uncertainty for all participants.

Confirmation – Therefore, we would firstly recommend confirmation by law that mandates can be used outside of the New Approach model. This could be done by amending article 4 of Council Decision 87/95 and adding a phrase that the issuance of mandates is not restricted to support of New Approach legislation.

Consultation – Secondly, we would plea for having a more structured and institutionalised involvement of the relevant stakeholders from industry and public interest groups by inclusion of a new clause in Council Decision 87/95, requiring the European Commission to consult the relevant stakeholders before finalising the mandate. This could, for example, be done by amending article 4 (add a clause that the Commission should also consult the relevant stakeholders) or article 7 (add a clause that SOGITS also consists of stakeholders and not only the national representatives and representatives of the ESOs) of the Council Decision.

The involvement of the stakeholders could be restricted to consultation only or could go further and even include their involvement in the standards drafting process. Their involvement in the standardisation process is further discussed in section 5 of this chapter: “Intake of Consortia”.^[133]

Revitalisation – Thirdly, we would argue that the SOGITS Committee should be revitalised because it is a valuable platform for gathering considerable feedback relating to the usefulness and scope of a standardisation activity in ICT. The specific nature of the ICT landscape cannot be fully covered simply by a general purpose committee such as the 98/34 Standing Committee. If the SOGITS committee were to be further opened to stakeholders, other than merely national representatives (our second recommendation), then this Committee could not only grow into an important counselling body towards the Commission. It would also become a platform for discussion between national administrations, the European Commission and stakeholders representing the industry and the public interest. Revitalising SOGITS would be possible without having to change the Council Decision or any other legal instrument. As the Committee is chaired by the Commission (article 7.1), the Commission is able to convene the Committee.

We do not think that any of the above mentioned recommendations to change Council Decision 87/95

¹³³ See page 78.

would prejudice the application of Directive 98/34 (article 9 of the Council Decision), since they merely change the involved actors without undermining the basic principle of the Directive. However, we would recommend having the legal services of the European Commission check thoroughly any possible conflicting issues between the different legal instruments.

4. Interoperability

4.1 What is the issue?

Interoperability within an ICT environment is a condition *sine qua non*. Without interoperability, systems and services are not able to work together, leading to a harsh environment for the users. In terms of the European region, lack of interoperability would disturb the creation of an internal market with consequences for the competitiveness of the European industry. Standardisation plays an important role in ensuring interoperability. For the EU policymakers it is, therefore, of utmost importance that a climate is being created in which interoperability standardisation activities can take place.

The recent past has shown us that interoperability for the telecommunications sector has been a successful story in Europe. However, as to the IT sector, the case is very different. First because an infrastructure upon which consensus can be made does not exist; second because it is newer than Telecommunications; third because the subject “functionality” plays a completely different role.

4.2 Interoperability, some definitions

Interoperability has been a major theme of discussion for some years now. As systems become more complex, and expectations grow for co-operation to achieve ever more demanding tasks, the term “interoperability” identifies the working area that should make this possible. However, the problem is far more complex than a simple technical problem.

To begin with, although there is a “common” understanding of what interoperability means, the precise definition varies from organisation to organisation and even inside organisations. For instance, there is the following definition (IEEE 90): “*Interoperability is the ability of two or more systems to exchange information and to use the information that has been exchanged.*” EICTA^[134] defines interoperability as “*The ability of two or more networks, systems, devices, applications or components to exchange information between them and to use the information so exchanged.*”

From the sphere of ETSI, an organisation which can be considered more concerned with telecommunications, there are at least three definitions:

- From the TIPHON project: “*Interoperability is the ability of two systems to interoperate using the same communication protocol.*”
- From the Technical Committee TISPAN of the Next Generation Networks (NGN): “*Interoperability is the ability of equipment from different manufacturers (or different systems) to communicate together on the same infrastructure (same system), or on another while roaming.*”

¹³⁴ EICTA – European Information and Communication Technology and Consumer Electronics Industry Association.

- From 3GPP, 3rd Generation Partnership Project: “*the ability of two or more systems or components to exchange data and use information.*”

With such broad scope of definitions the technical communities of the area went further in detail about interoperability. Four categories of interoperability were defined. The following definitions were used by ETSI ^[135]:

- **technical interoperability** – is usually associated with hardware/software components, systems and platforms that enable machine-to-machine communication to take place,
- **syntactical interoperability** – is usually associated with data formats. Certainly, the messages transferred by communication protocols need to have a well-defined syntax and encoding, even if it is only in the form of bit-tables. However, many protocols carry data or content, and this can be represented using high-level transfer syntaxes such as HTML, XML or ASN.1,
- **semantic interoperability** – is usually associated with the meaning of content and concerns the human rather than machine interpretation of the content, and
- **organisational interoperability** – as the name implies, is the ability of organizations to effectively communicate and transfer (meaningful) data (information) even though they may be using a variety of different information systems over widely different infrastructures, possibly across different geographic regions and cultures.

A division in levels is also noteworthy: content interoperability, service interoperability, device interoperability, and finally device to device interoperability (when two devices are connected).

It is generally accepted that technical interoperability is centred on (communication) protocols and the infrastructure needed for those protocols to operate. Interface Description Languages cover the cases where the interaction is local rather than remote and fulfil the same role as the infrastructure.

In this chapter we argue that the notion of infrastructure can be generalised and applied to the other categories of interoperability as well. An infrastructure at semantic level would then be the set of rules and definitions that would enable systems to become interoperable at this category. Defining and maintaining an infrastructure at this level is a rather difficult task. Indeed the compliance to hardware and low level software is easier than compliance to a higher and more functional level; and the consensual recognition of an entity that defines the semantic infrastructure for a certain area is difficult to achieve.

In terms of EU policy it can be said that technical interoperability is a problem that is mostly solved. It is a market issue and should be fought with anti-trust measures should market distortions occur. Therefore, this chapter is more concerned with semantic interoperability issues.

4.3 Concern for interoperability at policy level

At policy level the subject of interoperability has deserved some references in Communications from the Commission. The following two examples demonstrate how far the Commission intends to go to establish interoperable environments.

In the Communication (Communication “i2010 – A European Information Society for growth and employment”), the Commission states “*Digital convergence requires devices, platforms and services to interoper-*

¹³⁵ ETSI White Paper N°. 3 Achieving Technical Interoperability – the ETSI Approach. October 2006.

ate. The Commission intends to use all its instruments to foster technologies that communicate, through research, promotion of open standards, support for stakeholder dialogue and, where needed, mandatory instruments. Such a policy mix was the foundation of Europe's mobile telephony success. Under i2010, the Commission will also seek to establish a comprehensive approach for effective and interoperable digital rights management." (page 7).

"As ICT based applications become more available, there is an increasing need to make them compatible: e.g. the convergence between fixed and wireless networks and between telecommunications and audiovisual provision. Interoperability has many facets: for network operators, it means to be able to interconnect with other networks; for content or service providers, it means being able to run a service over any suitable platform. For consumers, it means the ability to purchase a device and use it to access services and download content from different sources. In general, interoperability and standards are elaborated and chosen by market operators. It is expected that the work of the European standardisation organisations, CEN, CENELEC and ETSI under eEurope 2002 and 2005 will continue in relation to the new priorities. In addition, governments must follow progress in this area attentively. In some circumstances, they may find it necessary to support stakeholders in their search for common solutions. In some areas, which have particular public policy relevance, it may be necessary to require the use of open standards." (p.10 Commission Communication "Challenges for the European Information Society beyond 2005" COM(2004) 757 final)

4.4 Two areas for Interoperability

A first angle to analyse the problem is to note the varying nature of interoperability, even inside ICT. The reality is completely different between the Telecommunication sector and the Information Technology sector.

4.4.1 The Telecommunications case

The various categories applied to Telecommunications – It can be said that interoperability in Telecommunications is mostly technical. Higher categories (syntactical or semantic) concern what is called "signalling", and this area is also subject to strong specification in the standards.

Inherent incentive – Considering the Telecommunication sector, since its beginning, more than a century ago, it was paramount for telephone devices to interconnect so as to be useful. ITU-T (or CCITT at the time) issued "recommendations" that countries were not forced to adopt. Non adoption of the recommendations would mean that they could not connect to anyone else, so the incentive to adopt the recommendations was high. Therefore, there is a "hidden" mandatory practice that goes well beyond the voluntary nature of the standards. Moreover, in those days, and for decades, the ability to interconnect was basically electrical compliance of equipments, making the interoperability task somehow trivial.

Certification – The task of certification was not performed by ITU-T but by national certification entities. Naturally, each European country had its own national certifying entity to verify the compliance of the products (telephones, PABX, etc.) that were sold in the country. Meanwhile, the software began to be an important piece in the Telecommunication sector bringing more flexibility but also increasing the interoperability task. The ISDN (Integrated Services Digital Network) initiative was European driven, and its deployment was difficult: different European countries had slightly different profiles and agreement was hard to achieve. This difficulty can also be interpreted by the existence of several entities (national ones) setting up profiles instead of a unique entity followed by everybody.

GSM example – The GSM network can be considered the next European endeavour in the area of a common

network after the ISDN experience. It is also an excellent example in terms of interoperability. The cellular reality is much harder than the fixed telecommunications reality. For fixed telecommunications, different profiles of the national networks could be solved with the introduction of gateways at the borders. With cellular networks, compatibility has to be at terminal level. It is much harder to achieve. Some relevant issues of the GSM case are described a bit further in this subsection. It is relevant to stress here the move from the Commission, Council, Telecoms, and ETSI on mutual recognition of conformity of telecoms terminals going beyond the closed reality of national certifiers. A European common practice was superimposed upon the reality of each country. Moreover, in practice, and over time, there is the recognition today that 3GPP has a leading role on validation and certification using ETSI's PTCC (Protocol and Testing Competence Centre). This aspect gets an even greater importance because of its true market recognition: industry is committed and maintains a budget for this task. A sustained reality for this kind of interoperability was created.

The GSM success story – Sometimes the successful story of GSM is cited as an example that should be followed to boost European industry and R&D. Some of those citations seemed to have overlooked the real facts and the possibility that it might be very unlikely that a similar story could ever happen again in the same terms. The GSM case was thoroughly studied and this description below is based on a note from the EU^[136] and a paper by Pelkmans^[137].

The GSM “success story” provides an example of the benefits of a clear transition strategy developed through public-private cooperation that minimises lock-in problems, just as the US experience of migrating from analogue to digital mobile phone standards provides an example of the costs of not having such a strategy.

In the early 1980s, Europe had monopolies in the telecommunications sector, owned by the States. The environment was not at all competitive but, on the other hand, operators could invest more because monopolies would guarantee them returns. Market liberalisation occurred later, after the major decisions on GSM were taken, when it was no longer possible to roll back. The necessary consensus to launch the initiative fed on very special conditions:

- (a) a small ‘club’ of powerful operators willing to invest heavily because they controlled their markets;
- (b) the importance of roaming between countries (the Scandinavian experience showed how important this can be);
- (c) the fact that analogue systems were incompatible, and that a gateway solution to interconnect networks cannot work for wireless networks (these last two reasons would make any partner willing to go it alone, think again);

GSM was not perceived as being a threat to the national, privileged suppliers and the relationship to ‘their’ post, telephone and telegraph (PTT) administration^[138]

As we can see the conditions for consensus were very specific and hard to repeat. But there were ‘small’

¹³⁶ Note for the file, subject: “*Reasons for success of the GSM standard and outlook for the success of the UMTS standard*,” EU, 24 May 2004.

¹³⁷ Pelkmans, Jacques (2001). *The GSM standard: explaining a success story*. Journal of European Public Policy, 8:3 Special Issue 432-453.

¹³⁸ This was the reality at the time providing national protection and ‘industrial policy’ to be exercised by the countries without any EU rules or any concern about the internal market.

hurdles anyway. One example is the approval of terminal types. Another one was the UK's decision in 1989 to launch higher frequency 'personal communication networks' (PCN) even before the GSM was on the market and accepted. Problematically, once one country stepped out of line, either others might be tempted to do the same, or uncertainties might sink the cooperative feeling..

The GSM initiative was a major breakthrough in technological terms but at the first stages suffered from the usual reaction of the market players: the considerable benefits were hard to sell and were seen as another set of gadgets promoted by technology-driven rather than costumer-driven people. The studies made on the attractiveness for costumers were never based solely on the technological merits, but rather on considerations such as the advantages of roaming.

Public governance was exercised at crucial moments and at the highest level. The fact that PTTs were owned by the states made the interventions more tolerable than in a purely competitive market. The public governance intervention was important in two broad aspects: lowering the nationalist spirits of the nations, and providing confidence (and subsidies) to the market players.

There has been a sequence of communications, resolutions, supports, etc. from the Council and Commission since the early times. Amongst these, some specific interventions were more important and decisive than others:

- (a) The EU Directive for mutual recognition of type approvals for telecom terminals – by that time standardisation and certification in the communication area were issues completely controlled by the national monopolies in the interest of the 'integrity of the network'.
- (b) Intervention on availability of frequencies at 900MHz in all states, and after that on calming down pressures to seek for 'temporary solutions'. As a bonus, Europe succeeded to establish the European Radiocommunications Office taking the responsibilities from the CEPT.
- (c) Breaking the deadlock on which to approve: narrow-band, broad-band, or hybrid – it went as high as a political deal between PTT ministers in Bonn.
- (d) The R&D subsidies and policies that began by the time of the European Single Act; and
- (e) The role of the equipment suppliers was also relevant for the overall process but care must be taken in analysing it. The chosen technology for GSM was almost visionary for the time. This was good because it caused the technology to be neutral in an economic sense. However the consequence was a huge investment in R&D to produce the complex equipment. The bulk of the investment came from industry. However European R&D policy (subsidies) more than helped, and above all just after the investments started, operators issued calls for tenders to industry. This is important because it reflects the degree of risk industry was prepared to take in such an innovative move. Bekkers et al.^[139] show, on the basis of detailed patent analysis of companies such as Siemens and Nokia, that industry only became active

¹³⁹ Bekkers, R., Duysters, G. and Verspagen, B. (2000) *Intellectual property rights, strategic technology agreements and market structure: the core of GSM*. Paper presented in Gothenburg, June.

after the 1987 MoU^[140]. Manufacturers did not trust the CEPT standardisation process (could lead to nothing) and only started the huge R&D efforts when the MoU was signed. Ten operators sent out requests for proposals for systems.

Easier to reach consensus – Even with all these hurdles the reality for interoperability in Telecommunications is “easy”. There is an infrastructure, the network, and the various equipments must be able to connect to it. Technical issues dominate the challenge, issues other than technical overall are peripheral only. Moreover, there is an entity that decides the evolution of the network and the industry recognises its legitimacy (eg. the 3GPP for the GSM/UMTS case). Finally, new functionalities for the network are very cautiously introduced, because the investments in changing an infrastructure can be prohibitive. Reality is very conservative in implementing the myriad of new functionalities proposed by the research community.

4.4.2 *The Information Technology case*

The IT case is very different. Firstly because a physical/low level infrastructure upon which consensus can be made does not exist; secondly because it is newer than telecommunications; thirdly because the subject “functionality” plays a completely different role. We will analyse each issue separately, although in reality they are intertwined.

No stable infrastructure – The IT case covers areas such as access to content (with issues of content coding and presentation, application presentation and execution, transmission formats, copy protection, DRM, etc.); application integration; core services that form the “glue” for the application integration (data description languages, file formats and schemas); presentation tools (office applications, content, codes, e-mail files, etc.); etc.

In such areas the rapid advances of technology and the ever growing expectations of the users towards the services to be provided, create a very adverse environment to define a stable reference “infrastructure”. A new functionality introduced into a product (or service) is cherished by the market over and above the ability to interact by freezing the specifications for a while. A notable example is the constant evolution of media players driven by private enterprises without much consensus. The creation of a general infrastructure (at semantic level) that covers such a wide range of areas as the ones described in the last paragraph is unfeasible. A possible solution might be the definition of an “infrastructure” specific to each area: eHealth, eInvoicing, eLearning, etc.. Part of the solution may also be to solve partial problems prior to the creation of a “general purpose” infrastructure that would make all and each area interoperable with each other. The main problem here is the recognition of the entity that controls the infrastructure and decides upon its evolution, by the relevant players. The analysis of the Telecommunication case above showed that ITU-T played this role with general recognition, the ISDN case showed a not so clear environment, and the cellular case showed that 3GPP is playing this role in a very efficient way with general recognition.

Young age of IT – The definition of a “controlling” entity for specific sectors of the IT area is also more difficult due to the young age of IT compared to telecommunications, and the changes the sector has witnessed recently. Consortia, industrial alliances, etc. have emerged, all with relevant work and recognition. For the Telecommunication sector the actors were ITU-T and the operators, and the division of the work was clearly defined. By contrast, in the IT sector the role international formal SDOs play is less recognized due to them failing to obtain a general and effective acceptance of their decisions by the relevant players. One can observe

¹⁴⁰ Considerations about the MoU are explained in the IPR section above.

industrial alliances making a better job of controlling sudden technological advances, to create the necessary stability for products to emerge. An example is the ZigBee Alliance for sensor networks. Others exist.

Diversity of participants – Therefore, the creation of a reputable “controlling” entity is not a trivial task. Potentially, for a certain area an SDO (either formal or non-formal) may well be recognised as a leading entity by the market. In this case this SDO alone might control the evolution of a certain infrastructure. In other areas the participation of different players might be important to achieve market credibility in a different form than just an SDO. eHealth may serve as an example. Certain participants such as software houses or hospitals might be more comfortable to discuss requirements at the level of an alliance and leave the standardisation effort to an SDO that also participates in this alliance. The main motivation in choosing such a role is the degree of involvement of these kinds of participants. All of them want to be present when the major decisions are taken, but cannot afford (or simply are not interested on) the major work of defining the details of the standard. In terms of the EU ICT standardisation policy, and depending on the specific policy area where standardisation is being performed, either of the above forms (a recognised SDO or an alliance) should be considered as possibilities to foster (semantic) interoperability (see below *The role of the Commission in a market oriented interoperability discussion*). The proper role of the Commission arguably also differs depending on the specific policy area: the Commission ought to have an active role in areas where governments and public authorities are directly involved, but should only be a catalyst for areas where the private sector must find its own solutions.

4.4.3 Is Interoperability an issue?

The final goal of interoperability deserves utmost respect. All systems must interact creating a more efficient co-operation of products and services. The problem is how to converge to this goal in the real world. The past has taught us some lessons.

The typical behaviour of formal SDOs is to aim for the perfect, completely clear standard that will be implemented by the market. Standards must be well-specified; completely non ambiguous; designed to be flexible; robust and predictable even for the cases so common of standards being used in different contexts than the ones used to write them. There is the recognition that this is not feasible, so a feedback mechanism with input from the implementers and the market is used to update (maintain, improve) the standard. New versions are created by the recognised formal SDO and the world will take these decisions and implement the new (better) version.

The objective is always one of perfection as these extracts from the white paper on interoperability from ETSI^[141] show^[142]:

- develop clear requirements;
- develop a comprehensive architectural overview, including clear identification of interoperable interfaces;
- concentrate on specifying the right things, i.e. interoperable interfaces, and resist detailing internal implementation;
- use good protocol design techniques, such as:
 - separation and description of normal behaviour and behaviour under error conditions;

¹⁴¹ ETSI White Paper n°. 3, Achieving Technical Interoperability – The ETSI Approach, October 2006.

¹⁴² Although the document refers to technical interoperability, most of this applies to semantic interoperability as it is a methodological approach.

- full specification of options, including consequences of not implementing options;
 - development of (interoperability) profiles, where appropriate;
 - full specification of data (messages) and the encoding of that data;
- plan for validation and testing.

Such a correct attitude is only feasible when the different participants (and most notably the industry) recognise the control of the technology by that specific organisation.

Even so there is the recognition in the same white paper that *“it is impractical to prescribe a rigid process for performing effective yet economic validation”*, and *“testing will not eliminate all possible instances of non-interoperability.”*^[143]

Flexible processes complemented by coding implementations – When considering the standards that succeeded in harsher areas, where an entity to control the process was not yet established and recognised at the time, one notes the importance of having coding implementations prior to the approval of the standard. Probably the standards themselves are written in a poorer way compared to the ETSI guidelines above. However the coding implementations complement most of the deficiencies. It can also happen that some less defined issues in the standard start to have a concrete interpretation after the implementations are written^[144]. The point is that the fact that some players invested in producing a coding implementation could mean that the time to market of the standard might be shorter. Unfortunately this is not a sufficient condition, as shown by a great number of IETF Request For Comments that have not caught market attention. Little by little, an SDO gets general recognition as a controlling entity for that standard. Interoperability stops being a general and vague problem and starts to be an incremental problem based on some reality that is being created. The process is very cumbersome and completely market oriented. Another way to achieve general recognition from the players is the organisation of interoperability events (ie, fairs) to test the various implementations from the industry. This starts to create a community of interested players.

In such a market oriented environment, the influence of what can be understood as a European position has to be made via the European players. They have to believe that European values are an added value for the products, and impose them. This is a weak form of exercising policy and our recommendations to involve the players intend to solve this problem as well.

Role of the market – The main argument defended here, is the role of the market to achieve interoperability by creating initial cases and not a general and vague discussion, or the creation of a general platform for all kinds of systems that will always be undermined by the technological (or functional) evolution. If the Commission and the Member States are involved at the initial phase, showing willingness and consensus to advance in a certain area, “the role of the market” can be influenced. Obviously, it makes more sense in areas where the public authorities have a more direct interest, as will be explained below. In any case, the market has to fulfil its role: all interoperability mechanisms thereafter, including testing and certification, will have to be sustainable by the market players.

In this respect the current reality shows two successful examples and one not so good from ETSI. Consider the cases of GSM, HiperMAN/WiMAX, and IPv6. The first two examples created resources with expertise in designing test suites paid by 3GPP and WiMAX Forum members. Their suites are seen as valuable for

¹⁴³ ETSI White Paper n°. 3, Achieving Technical Interoperability – The ETSI Approach, October 2006.

¹⁴⁴ We are not assuming that the coding implementations are “reference implementations”.

the market and paid for. The IPv6 test suites are paid for by the Commission and EFTA in the expectation that they will be actively supported in the future by the players, probably from the IPv6 Forum... If this is not the case, the effectiveness of such an effort remains doubtful. In terms of policy we can consider this case as belonging to symptomatic measures not aligned with a clear policy. In the first two examples there is European expertise and recognition. The IPv6 technology belongs undoubtedly to IETF and it is questionable whether efforts in testing are the most priority issue in Europe. What would happen were the European direction to diverge from the IETF one?

Creation of communities – One of the challenges facing Europe is how to create a dynamic drive that will aggregate the various players and create the market conditions to set unique European solution in spite of the interests of each country. The existence of recognised “controlling” entities is probably stronger in creating communities and consensus (because it is a market solution and technical issues might dilute more the political interests) than legislative acts to force the deployment of standards. An interesting example from a different area than ICT is the EuroNCAP (a brief description of the relevant issues is provided in the following subsection). It is a solution from the market (cherished by the Commission) that achieved recognition. If Europe succeeds in creating these entities with great involvement of the European industry and other players much of the “action” will start to emerge here. These entities might also be responsible for other “functionalities” such as certification, testing, etc., following the Telecommunication examples showed in the last paragraphs.

The European New Car Assessment Programme: EuroNCAP – Arguably, an example in a completely different area can help assess the different approaches. EuroNCAP stands for European New Car Assessment Programme, an independent organization that provides motoring consumers with an independent assessment of the safety performance of some of the most popular cars sold in Europe. The following three questions and answers were taken from the frequently asked questions section on its web site:

1. What is the main purpose of EuroNCAP?

EuroNCAP provides consumers with independent information about a car’s safety. This compliments all the other information available to consumers wishing to buy a new car. The ratings also provide an incentive to manufacturers to continually strive to improve protection. EuroNCAP has an important influence in improving road safety. Independent research has shown that improvements in vehicle safety have been responsible for the greatest reduction in road accident casualties over the last ten years.

2. How can you know if EuroNCAP has been effective?

EuroNCAP has been responsible for a dramatic change to overall car safety. This is readily seen in how quickly manufacturers improve their safety equipment and the steps they take to do well in the tests. Real world injury studies carried out by SNRA (Swedish National Roads Administration) and SARAC (Safety Advisory Rating Committee) demonstrate a reduction in injury risk for every EuroNCAP star received.

3. Why not use legislation to improve safety?

Legislation sets a minimum compulsory standard for all cars. EuroNCAP is able to encourage much greater safety by showing consumers the benefit of safety improvements. Introduction of new vehicle safety legislation can also be slow, as all EU Member States’ views have to be taken into account. Once in place, legislation provides no further incentive to improve, whereas EuroNCAP acts as a continuing incentive.

4.5 The role of the Commission in a market oriented interoperability discussion

The question is how European policy makers should position themselves for reaching their policy objectives in such a market oriented area of standardisation. We will assume that the purpose of any intervention is to create an internal market for a certain area, to enforce the European values in the products that will be generated, and/or to boost the industrial participation of European enterprises. Two areas for the policy makers to intervene can be distinguished: a direct one and an indirect one.

Direct driver – The direct area refers to products for which the EU public authorities are clients. For instance, e-procurement. For such cases, it is assumed that a controlling entity can be chosen (or created) to drive the process. The Commission, as a technology user, might even have the lead in the creation of such entity. The commitment from the Commission and Member States to pursue a certain direction, either by issuing legislative acts or other forms of expressing their will, should be used to try to achieve market recognition for the entity. For these kinds of direct areas, the enforcement stated in article 5 of Council Decision 87/95 makes an even greater sense. The ideal scenario is for the Commission to create an environment that would be the catalyst for action from the industry (a little bit similar to the one created by the interest of the monopolists telecommunication operators at the time of GSM, that led to a strong investment in research and products by the manufacturers, by knowing that the operators would buy the products).

By having a direct interest in the outcome of the work (possibly reinforced with *minor* financial aspects) the Commission should have a controlling role in the representation of the players in these entities and in the methods of work. For instance, one could create guidelines to keep the process open to interested players; one could make sure that the European values of coherence, transparency, openness, consensus, independence of special interests, efficiency expressed in Directive 98/34 are followed; one could enforce the standards development work to be based on collaborative tools to reduce the costs and, therefore, be affordable to SMEs; etc.

The direct area is the simplest one. However this task as well should not be underestimated. It is important to realise that up to now, no real internal market exists yet for a service in the IT area in Europe. GSM is an example from the Telecommunication area (the “easier” one). The difficulty resides mainly on how to “enforce” a voluntary standard in every European country? The legislative path, by referencing the standards in law is not completely adequate as is proven by the eSignature directive. Its path is far from lean: the standards that are referenced in law are so general as to not enforce (or hint at) for any particular kind of implementation and the whole process is taking too much time to be implemented, and can produce non-interoperable products. In order to achieve successful cases the first step might be the creation of a consensus at higher level on requirements (a European Committee with the active participation of the Member States) and then the technical delegation to an operational entity under surveillance by the Commission and the recognition of the players (these ideas will be further explored in part IV).

Indirect driver – The indirect area is much more complex. It refers to policy areas that are no longer a monopoly of the Member States, or the Commission. A good example is the eHealth sector. Any definition in these areas has to be recognised by the interested players (including the final costumers/consumers – in this case the hospitals). They must recognise that further investments in their IT structures will be beneficial to them as well; otherwise no implementation will create a vast market, or the process will be so slow that Europe would not be in a leading position. In the indirect area it is even more relevant to have “controlling” entities recognized by the players (with their participation) that would drive the process, and create a stable “infrastructure” for products to emerge without frequent changes and versions. Depending on the specific area, an SDO can perform the role if it is recognised by the market, alternatively a new organisation aggregating the active actors must be created. The role of the Commission here is much harder: it cannot

“impose” the recognition of this organisation to the market but might create the conditions by providing a kick-start action.

Alliances – For the sake of clarity we shall call these “controlling” entities “alliances”. The choice of policy areas where efforts should be made in starting alliances also has to take into consideration industrial policy concerns. These are choices that should be taken at the highest level showing also commitment of the Member States, to move to a harmonised environment where industry can offer products and solutions. An example of an area that could be covered by this kind of procedures and where there is a current lack of decisions, is a European solution in the area of SSL certificates that is currently led by one company, VeriSign.

For both direct and indirect areas the technical specifications created under the auspices of these alliances must have a coding implemented prior to the approval of the specification. It is important to note again that in our view alliances should drive the processes, but these need not necessarily be SDOs or specification providers. Standards would emerge from the most adequate SDO (preferably represented at the alliance), or be joint standards from more than one SDO.

4.6 Conclusions and recommendations

Lack of interoperability would disturb the creation of an internal market with consequences for the competitiveness of the European industry. Therefore, it is necessary for the EU ICT standardisation policy to view interoperability as a priority. However, EU ICT standardisation policy should differ depending on the specific policy areas involved. New Approach issues and public policies should enjoy direct participation of the Commission, but other areas must be left to the market and the role of the Commission should be a catalyst one. For the latter the EU ICT standardisation policy should create a fertile environment for ensuring that interoperability standardisation can take place.

In our opinion, when developing a strategy for interoperability standardisation in the ICT sector, it would be interesting to follow the telecommunication experience, i.e. having organisations that are recognised as having a leading role in establishing the progress in a specific area. These organisations might be SDOs (formal or non-formal) if they start to have general recognition, or alliances integrating SDOs and other participants.

The precise recommendations are much intermixed with other areas of this study such as mandates, consortia, or organisational structures to exercise the EU ICT policy but the main lines regarding interoperability are the following:

- Creation of a high level (policy and strategic) committee integrating Member States and other participants to define the areas of activity (with concerns on industrial policy as well).
- Creation of an operational committee to handle implementation issues such as identifying whether an SDO can perform the job, whether an alliance must be created, etc..
- For the direct area, create an alliance per policy area, co-ordinated by the Commission services to define requirements for the standards, and supervise their definition (the relevance of having coding implementations prior to the approval of standards should be seriously assessed).
- For the indirect area get the necessary involvement of the Member States at the higher level committee to provide “strength” to the SDO/alliance in order to establish itself in the market.

Note that the tasks of these committees are much broader than dealing with interoperability issues. Parts IV and V will integrate all these issues.

5. Intake of Consortia

5.1 What is the issue?

Nowadays much of the relevant work in ICT standardisation is being performed by non-formal SDOs and other specification providers. The current EU ICT standardisation policy was designed at a time when this phenomenon was not so important. The policy in practical terms is unable to influence the consortia, or take advantage of them. An understanding of the reality is necessary and ways to integrate consortia's efforts and skills should be performed.

5.2 Consortia: short description

The first observation about the “consortia” reality is the recognition that a myriad of different organisations are included in this study under the heading of consortia. Their universe is very dynamic (with creation and destruction of organisations over time) and they are so different that the definition of a grid to qualify them would be a major task in itself.

Diversity – Simply by way of example, consortia can be created as a consequence of an initial project, as an association of industries, as a merger of prior organisations, as a group of limited number of partners, etc. Their membership can be formed exclusively by industries, exclusively by individuals, or a mixture of both. In the latter case voting rights can be by member, or certain types of members (normally the individuals) have no voting rights. Their size and influence is also very disparate. A statement made in 2005 for the US reality^[145] showed that there were more than 450 independent specification providers active in the US, although approximately 20 of them developed about 80% of the standards in the US. Another point where there is some difference is in the technical scope of their activities. In this study we decided to distinguish between consortia that are performing standards on a wide range of issues (and called them non-formal SDOs) from the ones that are still very focused on a narrow range of technical issues (and called them the specification providers). Both have their virtues although the ones that are still focused on narrow subjects are still very dependent on the success of that precise technology.

Concentration and specialisation – Apparently the number of independent specification providers has decreased lately. Probably the world is witnessing the classical phenomena of concentration and specialisation of an activity, after an initial typical period of enthusiasm. A limited number of organisations achieved already a global recognition for certain areas. Well-known examples are: 3GPP on cellular networks^[146], IETF on Internet network technologies, and IEEE on Local Area Networks. A common important characteristic is their willingness to be viewed as global organisations and, in some cases, their reluctance to approach the formal world (or regional) system of standards. This consolidation process had one virtue amongst others: the suspicion of vested interests of industries in creating consortia and specification providers can now be easily recognised by assessing the global credibility that the organisation achieved.

As stated before, the importance consortia currently have is also due to their advent in the US as an outcome of the market forces in a country that recognises these forces over government regulation. It is also a fact that the major ICT industries (large and medium enterprises) are based in the US. It is thus natural that most

¹⁴⁵ Statement of Dr. Hratch G. Semerjian, Acting Director, National Institute of Standards and Technology, May 11, 2005 before House Science Committee of the US Congress.

¹⁴⁶ 3GPP is a partnership of regional organizations.

of the consortia are US based. Europe also has some very active ones [eg. OMA (Open Mobile Alliance), ECMA International, etc.] but in a lesser number. Two interesting situations are nevertheless happening: (a) consortia aim at acting on a global scale and want to have “action” worldwide. They are not so eager to be accredited by ANSI anymore and some make a point of opening offices worldwide; and (b) the US government tries to redouble efforts to make the US system more accessible to players outside the US, and to help them understand their system better in order to increase their willingness to adopt the standards approved by their consortia and attract “action”.

5.3 Challenges for Europe

Involvement of consortia – Consortia cause important challenges for the European Union. One of the major tasks is how to ensure involvement of European participants in those organisations that aim to become global, and start to attract “action” to Europe (for Europe the problem should not be the rejection of consortia based on their origin). This is a difficult task for different reasons:

- First, because standardisation and product development are closely linked. Only in the areas where the primary technological development is taking place in Europe there would be a strong likelihood that the standardisation of that technology would also take place in Europe. It is a result of being at the forefront of technology and market (there are examples where Europe has a major role). Therefore there must be a slow process of increasing the technological expertise in Europe.
- Second because the industrial structure in Europe is based on SMEs. SMEs usually do not have the ability to monitor and make long range technical decisions. It is recognised that participation in standardisation activities is a proportionally bigger investment in time and resources for individuals and SMEs than for the larger organizations. In cultural terms the interest of European SMEs to participate in standards development is also much more reduced than in the US. Furthermore, only a small percentage has the ability to participate in the global processes of standardisation. Some global consortia adopted already collaborative tools as the natural way to produce standards making the member participation less costly.
- Third, the European research community, usually more internationalized than the industry, is already participating worldwide shortening the gap and paving the way to the future.

Standards as a market – Another challenge is that standards production has to be viewed as a market itself. Formal, non-formal SDOs, and specification providers are competing to attract expertise in a certain area, achieve a critical mass and establish themselves as the driving force behind a technology. Several issues are important here: the type of interlocutors, easiness to achieve consensus, external credibility of the consensus building process, IPR conditions, in some cases the potential to arrive to formal international specification providers in a speedy way, and even the personality of the managers at the top of the organisations. This is the environment where ESOs must compete if they want to achieve intervention in less regulated (or more market oriented) areas. The current landscape proves that they are not winning this challenge.

Bottom-up process – Another important challenge is the fact that ICT has become an activity where the bottom-up process is paramount. It is no longer an area where the “regulating” role of standards is the major one (as for bolts or bricks). Communities of technical experts and stakeholders define and implement the future needs and products setting up their timings. The traditional position of formal SDOs in defining the reality from a top-down approach seems to be no longer valid. This is true for the Information Technology sector but it will also be for the Telecommunication sector as future services will also become each time more independent from the platforms (see, for instance the IMS (IP Multimedia Subsystem) for cellular networks). ETSI and 3GPP have successfully created an environment and *modus operandi* that is not the

traditional one in formal SDOs and has been proving to be the correct one. Control of the IMS introduction will be a challenging task in the future.

Success formulas? – As for any other market activity the path to success is not always swift and clean. Two examples illustrate that there are no success formulas owned by organisations: IEEE had some success at the time of Ethernet, Token Ring and Token Bus but remained more or less in hibernation in Local Area Networks until the advent of WiFi. It is clear now that they succeeded to keep the “action” in the LAN area since then. Another aspect of the difficulties is the case of IETF. Although the internet network standards from IETF are broadly recognised, the number of IETF standards with very little impact in the world is very large.

Need to increase participation – Given these arguments, it is clear that the standard activity of consortia that are non formal SDOs is not a transient phenomenon in ICT and it is doubtful that it will eventually converge to the formal system in the future. Therefore, consortia must be considered as “a fact of life” in the sense that Europe must learn how to interact with them, and not fight for their elimination, or integration into the EU standardisation structure. A first step is to increase the European participation. This is a slow process and is more related to the ICT policy in Europe and not so much to the ICT standardisation policy. The current ICT policy must be pursued and enhanced^[147]. Any other kind of swifter measures as ad-hoc initiatives to finance European participation at institutional level do not really come from the industry and will fail in the long term. In the meantime, the best Europe can do is to integrate its efforts within European industrial and standardisation policies to contribute to shorten the gap between the consortia and industries. Our recommendations go in this direction.

5.4 Accreditation of consortia

Analysing the major consortia it is important to notice their position facing the formal standardisation system. Some organisations feel that a certain relationship is relevant and others do not.

First group – In the first group one can see the establishment of fast track agreements to have the non-formal SDO standards approved as international standards, or the willingness to offer their specifications to the ESOs. We can also see bilateral agreements with formal SDOs (ETSI in the case) that might be interpreted either because a real technical cooperation is felt as necessary, or because it is necessary to be involved at that level to have influence towards the Commission. Given this attitude, if the question of referencing the standards in law ever arises, IPR concerns do not seem to be a problem. Probably the main concern here would be the issue of maintenance of the standards (see below). A European ICT standardisation policy for this group is easier to envisage due to their interest to participate.

Second group – The second group contains consortia that do not feel the need to pass their standards through the international formal system, nor feel any need to approach government authorities. Their arguments, which can be very acceptable, are the fact that their standards are limited to technical issues^[148] and they do not intervene directly in social or politically sensitive issues. It is a “new” process and considering the market view of standardisation the path to be recognised at global level as the leader entity in one technical area is more difficult. The most well-known case is IETF and the internet network technologies, although IEEE and the Local Area Network technologies is also a good example.

¹⁴⁷ OECD Information technology outlook 2006

¹⁴⁸ What is sometimes called as “*pipes and wires*” citing Jane Winn, in a position paper written as a contribution for this study.

Criteria for acceptance? – Due to its worldwide acceptance of the standards, an analysis of whether the standard processes meet European and WTO requirements and values in order to accept them makes relative little sense. Either, it does not make sense to establish some European structure of accreditation or definition of European profiles towards these standards on the pure basis of being designed outside Europe. As long as these standards cover the area of “pipes and wires” they should be viewed as a market issue. Therefore, the position of Europe and the Commission should also be based on market rules. If there is a need to reference them in law, it should be kept in mind that the standards lists are updated regularly and other standards might be referenced in the future (in any case such references must always be considered as exception cases). If services originated from these communities fail to comply with minimal requirements in Europe the capacity of the European industry must be accessed in order to start efforts to build competing services. For instance, imagine a Voice Over IP service becoming successful in Europe, and the quality of service is under par. Without the ability of the industry (preferably European and with some “kick-start” from the Commission) to construct a better service to compete with the incumbent, any measure solely based in law to forbid the exploitation of the incumbent service would not work. This Voip example is fairly easy and refers to “pipes and wires”. The problem of Europe being invaded by other products through the telecommunication infrastructure will become more serious in the future and it is not a specific problem of ICT standardisation policy. The world permanently changes from manufacture of physical items to high-values intangibles: on-line games, music, scientific publications, and mobile and user created content^[149]. When and if the values conveyed in these products go against the European values some new actions must be devised.

Agreements – An interesting issue is to assess the long term willingness of consortia to set agreements with formal SDOs to have their standards approved as regional or international standards. Is it a transient phenomenon? Probably we are witnessing a transient phase due to the tradition of having standards approved in this way and less care will be given to this issue in the future. Probably the regulating nature of Europe (and the importance given to ESOs) and its current share of the world market still induce this behaviour. However as other regions start to be important, other ways of proceeding will emerge. We will see below that these recognitions have some hurdles but the point here is how Europe should behave. Clearly this is not a general problem of standardisation but is confined to ICT. As ICT is becoming global, so are its problems/features. If the market starts to widely adopt standards from consortia a position from Europe of ignoring them just enlarges the number of subjects for which the official standardisation policy will have problems. This is in line with the following argument: “If some technology from consortia gets market approval and starts to be used, why the consortia community aims at having formal SDO (or ESO) approval anyway?” This might lead to independent developments from the consortia without any influence of Europe apart from the willingness of European participants to interpret and apply what they think the European values are. The other extreme, giving too much attention to consortia, can also be problematic. There is a myriad of consortia and the plain recognition of them all could give voice to minor organisations not so representative of the European industry (and possibly with vested interests).

5.5 Acceptance of consortia work

How can then the acceptance of the work made by consortia be performed? The problem of the recognition of deliverables drafted by consortia by a European certification entity should then be put into perspective. The US reality in this respect is the accreditation by ANSI, subject to what is called the “Essential requirements”. Overall it is not a very successful process and several consortia were not even willing to comply. The

¹⁴⁹ OECD Information technology outlook 2006.

transposition of such procedure to Europe seems inappropriate due to the evolution of the world and the relative importance of the American experiment. What seems to be important is the willingness of certain consortia to work with Europe, the Member States and the Commission. Integrating efforts should be made with them and assume that consortia not willing to participate will develop “pipes and wires” standards.

An alternative form to integrate the work of consortia than accreditation is to find ways of close cooperation. Two scenarios are considered: the existence of the alliances proposed in the previous section, or a not so tight environment.

The first scenario is easier. For the direct area, the area where the Commission and governments are clients of the products, the Commission and the Member States should define “best practice” rules that should be followed by consortia in order to participate^[150]. The main idea is to exclude organisations that are not representative of the industry and would provide little added value to the work. Standards produced under the auspices of the alliances would have enough credibility to be used by the Commission and Member States at policy level and even legislative level.

If the creation of alliances is not found to be feasible, participation could be sought at the level of coordination. Ignoring them just puts them outside of any European policy. Work seen as relevant should be considered to be part of the list of standards used in policy or legislation. “Relevant” means both technically sound and performed in a way that it is recognized as following the European values.

Citing standards from consortia in law raises the problem of maintainability of the standards. This might be a false question due to the speed of technological development in ICT and the fact that lists are intended to be updated regularly. Various situations may occur:

1. If a standard gets outdated with time and the consortia is willing to update it (the normal case), then no problem exists.
2. If a standard gets outdated with time with no organisation assuming its upgrade and the market just ignoring it, then the problem of maintainability does not exist and the standard should be withdrawn from the list.
3. If a standard is not updated by the original organisation but there is interest in the market for an improved version, it is assumed that the market interest will trigger the interest of some entity (formal or non-formal) to follow up the work. Two situations can happen: either the Intellectual Property Right of the standard is “free” (because the original organisation just gave it away preserving the copyrights) or not (but it was nevertheless decided to include it in the list). The first situation raises no problems. Regarding the second, it is questionable whether a new standard with different characteristics (even based on a previous one) violates the IPR of the original one. Just to give an example, consider eHealth and a certain standard defining interfaces and data. It is questionable whether the organisation that specified it has IPR over any new form of definition of interfaces and data for the eHealth business for ever and ever..
4. If a standard is not updated by the original organisation either because the latter no longer exists, or because it is not willing to update and no other organisation is willing to update, then an ESO must assume responsibility. ESOs have obligations and one of them is to provide standards seen as public interest ones. In this case, the ESOs have to assume the role of updating. There are some more consid-

¹⁵⁰ Such as the ones described in annex 3 of the WTO agreement on technical barriers to trade (“Code Of Good Practice For The Preparation, Adoption And Application Of Standards”)

erations here: the IPR problems are similar to the cases referred in 3; and the fact that the ESOs get a task that did not belong to them in the first place is similar to the maintenance of a standard originated in an ESO when the original team is no longer available. Major problems would seem unlikely.

It is important to realise that the current situation of fast track agreements is not a very clean procedure either. When an ESO approves as European Standard, a standard originating in a consortium, there is no expertise at the ESO to maintain the standard either. One of the above alternatives has to be chosen. The case is even less straightforward when the original standard is modified.

5.6 Coordination activities

One criticism to the appearance of consortia is the fact that they disperse the expert community and prevent them from joining formal SDOs to pursue the work there. Sometimes even the same type of work is being done by more than one SDO. Therefore duplication of work occurs, making the system inefficient. This is probably true but should be considered a fact and handled appropriately. What is needed then is a mechanism to coordinate the various activities, and partly reduce duplication.

This coordination effort is not a real need in market terms (where the survival rule often applies) but can be welcomed if it brings efficiency. Europe can be at the forefront of this effort. Firstly because of its heritage of government participation in the market; secondly because there have already been some successful attempts performed by the ICTSB (Information & Communications Technologies Standards Board). These kinds of activities help in bringing some order to an environment without many rules. They also have the advantage of incorporating non-formal SDOs. In this respect, in terms of adaptability to a new system, Europe has shown an appropriate reaction.

One can say that the issue of referencing non-formal standards in law is just a “small” step that needs clarification when compared to bringing together formal, non-formal SDOs, and specification providers strategically to plan their activities.

It might be the case that the relevance given to the actual work of the ICTSB in the previous paragraphs is overdue. Nevertheless such idea should be cherished and made semi-institutionalized. A forum with such characteristics could be an operational platform to pursue high-level policies decided at higher level. It is also a place where the voice of certain stakeholders such as consumers and SMEs could be heard.

5.7 Conclusions and recommendations

The role played by consortia in the ICT area has to be considered as the beginning of a new way to perform standards in the world. It is unwise to think they will eventually disappear or be integrated into the formal structure.

The main issue to consider is the division between on the one hand consortia that want to cooperate with the Commission under the cultural and societal rules that have been created in Europe over the years, and on the other hand those that do not see any advantage in it. As long as this latter group performs “pipes and wires” standards, the Commission should see it as a market issue that should be handled in market terms.

Ignoring the problem, i.e., not taking into account their contribution in the EU ICT standardisation policy, simply creates an area where there is no influence of the public authorities and the Commission. This is problematic because certain consortia are performing relevant work in social or politically sensitive issues. It also makes the use of their standards problematic. The current situation makes little sense because the Com-

mission and public authorities pretend not to see (in formal terms) what the consortia produce and have to accept their work due to the forces of the market (for the cases which become successful). Moreover, certain issues such as maintainability of standards have not been deeply analysed, leading to a failure to recognise that the current situation is neither totally simple nor lean.

Therefore, mechanisms to incorporate some of the consortia in discussion forums at higher level at the European level should be devised. Cumulatively, their work should also be recognised. Incorporating new “players” in the field makes co-ordination tasks desirable but Europe has been proved that in this respect it was able to find a workable solution that deserves to be supported and given a more formal role.

6. Relation between R&D and European standardisation

6.1 What is the issue?

This section addresses the question posed in the call for tenders, i.e. how can standardisation be used as a means to leverage the results of EU R&D projects^[151]. First an overview is provided of the Commission’s concerns regarding the link between R&D and standardisation. Next, two assumptions are identified which underlie the Commission’s problem definition. Subsequently, ways are discussed to diminish the barriers and increase participation of researchers in European standardization. More specifically, problems are discussed in transferring the output of EU R&D projects to the standards arena. Finally, recommendations are made.

The insights and recommendations in this section of the report heavily lean on the work of two EU projects that specifically aimed to research the relation between R&D and European standardisation, i.e. the CO-PRAS and the INTEREST project.^[152]

6.2 Current state-of-play

6.2.1 Previous policy and project activities

Systematic link between R&D and standardisation – At the time of the fourth EU Framework Programme (1994-1998) a systematic link existed between research and standards policy. E.g. the RACE programme on communications provided important contributions to standardization, “(...) *for example concerning the specification of the GSM, where standards and research proceeded in parallel*”. In 1998, a Commission document (COM98 (31))^[153] concluded that more monitoring and coordination is needed between the Research and Technology Development (RTD) and standardisation programmes.

A number of activities have taken place since then. CEN has established the CEN-STAR ad hoc group to strengthen the link between normative research and standards activities within CEN, and e.g. has introduced “*a mechanism for the identification and the development of a method for prioritisation of co-normative re-*

¹⁵¹ Tender Specifications, p.44.

¹⁵² The INTEREST project examines the overall relation between research and standardisation. The COPRAS project studies ways to improve the contribution of EU-sponsored research to standardisation.

¹⁵³ COM98(31).

search requirements to support the standardisation programmes".^[154] Furthermore, CEN/ISSS has improved the standards/research interface in electronic commerce-related IST projects (C-ECOM project, IST FP 5).

Recent study projects – More recently, two EU projects have been finalised that were funded within the 6th Framework and which re-address the standardization and R&D link, the COPRAS project and the INTEREST project.

COPRAS (*Co-operation Platform for Research and Standards*), whose members are the three ESOs, The Open Group and W3C, has provided dedicated help in linking IST projects to standards organizations. It has done research on the relevance of standards to IST projects throughout FP6, and their understanding of the problems and issues. It has provided generic guidance material to help such projects in the future.^[155]

The INTEREST (*INTEgrating REsearch and STandardisation*) project's aim has been, in particular, to identify relevant dimensions to be considered successfully to integrate research and standardisation. These dimensions have been used to develop a taxonomy that links research output to Technical Committees in CEN, ETSI and CENELEC. In addition, two manuals have been developed that can foster the integration of research and standardisation, one aimed at R&D organisations and researchers and another for standards setting bodies.^[156]

6.2.2 Current EU concerns

Fading link between R&D and standardisation – Incidental EU projects aside, after the FP4, policy on the R&D-standardisation link faded to the background until the Commission (2004) and the Competitiveness Council (2006) again drew attention to the importance of standardization in supporting innovation.

Two types of relationships – As the following quote implies, the Commission identifies two types of relationships between standardisation and innovation (here equalled to R&D): "*Standards play an important role for innovation, thus influencing business investment decisions on R&D. As a source of the most up-to-date technical knowledge, standards broaden the knowledge base of the economy and can integrate new technologies and research results harmoniously into the design and development process of new products and services*"^[157].

That is, on the one hand, standards result from R&D and provide input into standardisation processes (i.e. innovative standards: *integrate research results*, incorporate *up-to-date technical knowledge*), and on the other hand, standards are used in the R&D process and may function as a platform for innovation (*important role for innovation*). The Commission interest currently lies in the former area, as its motives for addressing the relationship indicate.

Issues – Given the dual competitive-collaborative economic relations between regions of the world, about which more is said in the next subsection^[158], one of the reasons for the European Commission's interest in the relationship between standardization and R&D, is that R&D projects sponsored with European money are (a) not delivering the expected benefits for European industry, benefits that could take shape via stand-

¹⁵⁴ INTEREST, 2007, p.9.

¹⁵⁵ Extracted from Ketchell (2007).

¹⁵⁶ INTEREST, 2007, p.6.

¹⁵⁷ Commission of the European Communities, 2004b, p.6.

¹⁵⁸ See subsection 6.2.3 "Principled questions" on page 87.

ards or otherwise in new markets. Several sources argue the value of disseminating and consolidating the results of EU R&D project via standards ^[159].

Moreover, (b) where European R&D projects do lead to standards, the knowledge seldom finds its way to (European) standards bodies. It is often fed, without overt recognition, into the committees of standards bodies in other than the European region.

At present, another closely related problem is emerging, one which in a first instance concerns the ESOs, but will soon impact upon the whole EU. That is, (c) acquiring the necessary technical expertise for European standardization, which is sparse as it is, will in the near future become a grave problem due to the lack of engineers in technical sciences and the prognosed retirement of many active experts now shouldering most of the standards work. In areas where there is a need for standardisation, it is a waste of resources not to use the results of EU research.

In terms of the conceptual framework of the INTEREST project (2007), the Commission's focus is on knowledge transfer from R&D to standardisation (upper arrow in figure below) in terms of 'Research Output Push' (a&b) as well as 'Standardisation Input Pull' (c).

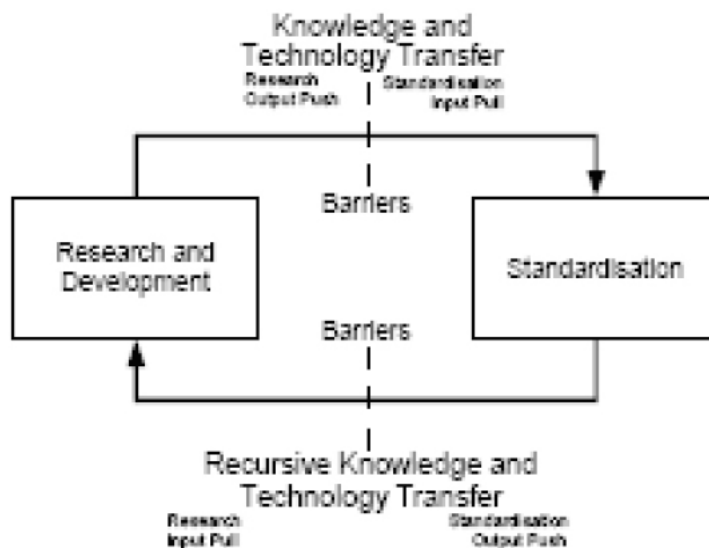


Figure: Knowledge and technology transfer (source: INTEREST project, 2007, p.8)

R&D output and standardisation input – Against this background, the question ‘How can standardisation be used as a means to leverage the results of EU R&D projects ^[160]?’ can be further specified into

- *Research output push*: How can knowledge from EU R&D projects be transferred to achieve state-of-the-art standardisation?
- *Standardisation input pull*: How can industry researchers as well as academics be involved more closely in standardisation and how can barriers for participation be taken away.

The questions reframe standards as R&D output, a matter which needs to be done with caution. Design by standard committees may need to be avoided, as an example where R&D formed direct input for stand-

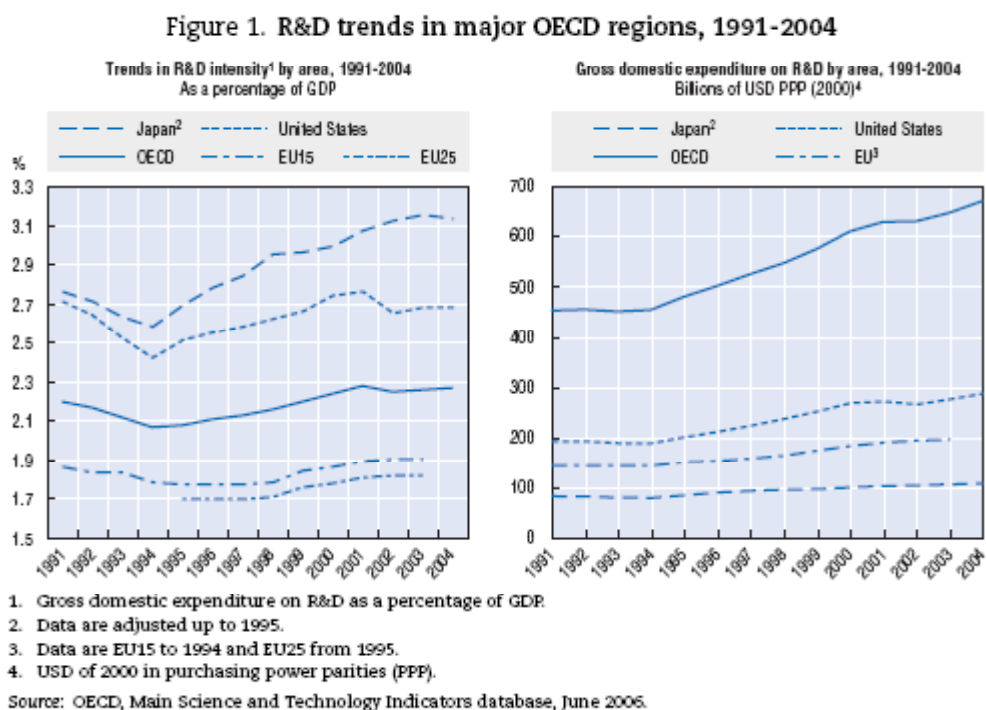
¹⁵⁹ COPRAS, 2006b, p.5; Commission of the European Communities, 2004a, pp.16-17.

¹⁶⁰ Tender Specifications, p.44.

ardisation showed.^[161] In the discussion that took place at the final COPRAS conference^[162], participants remarked that one often cannot tell what comes out of an R&D project; that the usability of R&D should lie at the heart of the decision to standardise and that the transition from research to standards making should be a business decision; and that the difference between a technology- and a standards-oriented platform should not be dismissed. Indeed, “*the direct transformation of research results into workable standards will hardly be possible in most cases. Rather, research findings typically need to be complemented by real-world implementation experience (...).*” (INTEREST, 2007, p108)

6.2.3 Principled questions

Inter-regional perspective – Before examining the relationship between standards and R&D more closely, we put the European findings into inter-regional perspective. Current statistics indicate that Europe’s R&D intensity is behind those of other regions. See the OECD figure (2006). Against this background the Competitiveness Council (2006) has identified pro-active standard-setting as a strategic priority in enhancing the EU’s competitiveness.



Two policy assumptions – The inter-regional competitiveness lies at the heart of two main policy assumptions as set out by the European Commission (Commission, 2004): “early standardization is best for European industry” and “European standards are best for Europe”. We will further elaborate on these two policy assumptions below.

Early standardization is best for European industry – Using standards as a way to leverage R&D results, as the Commission proposes, inherently means ‘early standardisation’: standardisation takes place at a very early stage of technology development. The INTEREST project (2007) speaks of pre-normative RTD, which

¹⁶¹ E.g. Datex I experiences into Datex II). (INTEREST, 2006)

¹⁶² COPRAS, 2007.

generates new information or knowledge for future standards, and co-normative RTD, in which R&D is carried out in support of current standardisation programmes.

Where the innovation process and standardisation proceed more or less in parallel, committee standardisation can in effect become a vehicle for a claim to market for EU industry. This type of high-end standardisation requires the participation of high level researchers^[163].

There exist several, less market-political arguments in favour of early standardisation. Technology and market coordination by means of standardisation must take place at a very early stage for the sake of interoperability and to pre-empt difficult negotiations based on vested interests. At such a stage pre-normative R&D is a 'pre-competitive' enterprise, in the wordings of FP4^[164]. Moreover, "*The current pace of technological development forces standardization and research to proceed in parallel - starting standards activity early provides better chances for being successful.*" (COPRAS, 2007).

Side-effect of early standardisation – A side-effect of pre- and co-normative R&D may be 'staking the market', which is a well-known strategy (e.g. DVD recordables war), and sometimes successful. However, policy makers, will need to decide (a) whether normative R&D, assumes – correctly or incorrectly – a European ICT industry, is to the benefit of European industry (who benefits from such a strategy?); and (b) whether it collides with the Dresden Agreement, the Vienna Agreement and the WTO Code of Good Practice (2006)^[165].

Early standardisation not suiting all ICT – Moreover, let us briefly call to mind literature in respect to timing of standardization because early standardisation may not suit all ICT. The technology life cycle contains different stages (See figure below).^[166] Standardization at an inappropriate time can lead to economic inefficiency. Too early standardization may prematurely lock an industry into a technology^[167], precluding experience with the diversity. Or, in short, pre- and co-normative standardisation differs distinctly from the type of standardisation that results from repetitive use of a specification, which the formal definitions usually refer to (i.e. the need for a standard should be based on the expectation of repetitive use of the specification). Is repetitive use of the R&D outcome to be foreseen?

¹⁶³ In these circumstances, for example, the Commission issued the GSM mandate to ETSI. It was a "targeted R&D initiative to speed up the standardisation work" (Commission of the European Communities, 2004a, pp.16-17).

¹⁶⁴ This was a topic touched upon at INTEREST, 2006.

¹⁶⁵ WTO, 2006.

¹⁶⁶ An example of identified stages is: Emergence, Improvement, Maturity, Substitution, Obsolescence (Betz, 1993). The figure stems from Sherif (2006b). Different angles exist on the role of standardisation during the technology life-cycle. E.g. Sherif (2006a) argues that at each stage a different type of standardisation is needed (i.e. *Anticipatory standards* specify the production system of the new technology; *Enabling standards* refine the system; *Responsive standards* codify knowledge already established in practice through precursor products or services.). The INTEREST project takes a slightly different angle, concluding that different types of standards play a role in different stages of innovation. For example, terminology standards are already required at an early stage of basic research into new technologies. (INTEREST, 2005b, p.9, p.40)

¹⁶⁷ It may narrow down innovation – although it also may prevent duplication of research work.

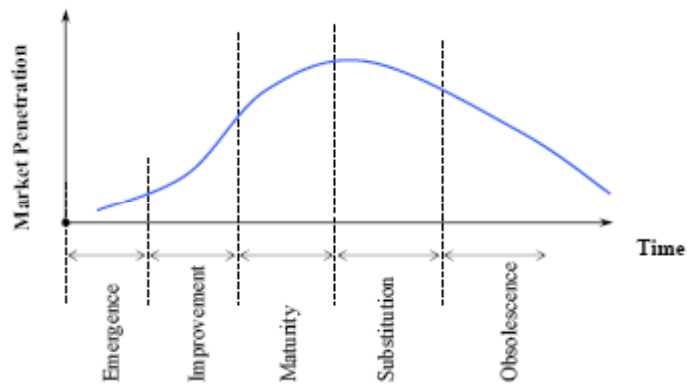


Figure: Stages of technology maturity (Sherif, 2006b).

European standards are best for Europe – (see also the section in this report on the regional-global issue). There is some understandable discomfort where public money spent on European R&D projects is fed into the committees of standards bodies with other than European identities. However, the underlying question should maybe be posed in a different way, i.e.: *wherein does the European interest lie regarding standardization,*

- does it lie in developing standards, implementing them, or using standard-compliant products and services?
- does it lie at doing so at the European and/or at the international level?

The dilemma is summarized in the matrix below:

Stand. Stage Standard Body Identity	Standards Development	Standards Implementation	Use of Standard-compliant products
European (ESOs)	A	B	C
International / other	D	E	F

Table: European interests, in what way and where are they best served?

At present, in relation to R&D, Commission documents imply that the European interest is best served by feeding EU R&D results into European standards bodies (cell A). There is an argument to be made for each cell. Each cell invites a different R&D-related ICT standardization policy. In other words, this assumption should not be taken for granted.

6.3 Research: Motives and barriers to standardisation

No general conclusions - Looking at R&D organisations that are already involved in standards work, to what degree is level of R&D (i.e. patents as an indicator thereof) related to participation? There appears to be no

straightforward relationship. The R&D intensity of companies has no significant impact on the likelihood of them joining standardisation.^[168] Therefore no general conclusions can be drawn at this level.

Main motives – More directly applicable information exists on the individual level that is on how industry researchers as well as academics can be involved more closely in standardisation. The INTEREST project examined the motives and barriers to participate in standardisation in all areas of research, including ICT. This was done better to understand the barriers for the transfer of research outcomes to standardisation. The main points are summarised in the following. The main motives to participate are^[169]:

- Addressing or solving a specific technical problem.
- To improve the dissemination of research results, positive feedback can be generated for own research activities, incl. improving chances of future R&D funding, and commercialisation of research results.
- Opportunity to improve the collaboration and links with other researchers and developers, which means that the process itself is of value for the participants' research activities.

Main barriers – The main barriers to participate are^[170]:

- Contributions to standards rank lowest among all channels of recognition for research work (they are highest for scientific publications and success in raising external funds).
- Participation is too costly for researchers in terms of time and money and in the light of the lack of recognition gained by contributing.
- Perception of discrepancy between the timing and speed of research processes and standardisation processes (too time-consuming).
- The additional work required to adjust research results to fit standards requirements.

6.4 Standardisation: Input from EU funded projects

Which barriers exist to bring the results of EU-funded research projects, in particular, to standards fora? The COPRAS project focused on this question. In the following we summarise their main findings and present their conclusions^[171].

Standardisation gap – One of the most crucial problems is that in the planning and start up phase EU projects lack information about standardisation^[172]. If the interface between R&D and standardisation is not organised at this early stage, there will be a delay in standardisation. COPRAS refers to the time gap between the end of the R&D project and the start of standardisation as the “standardisation gap”:^[173] Moreover, by the time the research project is ready to contribute to the standards committee, the R&D project may have no resources left to make the contribution. That is, sometimes the standards process comes too late: the project closes and has no further resource to submit results.

Furthermore,

- For some projects, standards are irrelevant;

¹⁶⁸ Blind and Thumm, 2004.

¹⁶⁹ INTEREST, 2005b, p.23-26.

¹⁷⁰ INTEREST, 2005b, p.40, p.42, p.43.

¹⁷¹ COPRAS, 2005b, 2006a, 2006b; Ketchell, 2007.

¹⁷² COPRAS, 2006b.

¹⁷³ COPRAS, 2006a, p.6.

- For those where standards are a relevant issue, roughly half have little or no idea how to go about putting their work to standards bodies;
- Some projects know which standards group(s) they are targeting. Many are completely confused given the fragmented nature of the ICT standards arena;
- Often their outputs might be relevant to several different bodies and consortia. How can projects be helped through this jungle?
- Some projects build the standards activities into their action plans and sometimes the cost is recovered. More usually, no provision is made and the project partners have no funding for standards work to promote their results.

Still many barriers – The COPRAS report concludes that there are still many barriers for projects participating in standardization such as membership fees and confidentiality rules relating to project output. There are currently no mechanisms available to determine whether there are standards available or standards organisations active in the specific area of an IST research project^[174].

Suggestions – Furthermore, COPRAS suggests that some dedicated support for standardisation be organised at the end of R&D projects through separately funded calls^[175]. It further concludes that additional ways of identifying requirements from standards organisations to IST research at an early point in time could greatly improve the standardisation potential of research output.

6.5 Recommendations for EU policy

The following recommendations focus on how to increase the input of R&D in European standardisation. They target different audiences (individual researchers, R&D projects and research organisations) and EU policies, in particular, EU ICT standardisation policy, innovation policy, and education policy. The first set of recommendations stem from the INTEREST project (INTEREST, 2007); the second set, which focuses on increasing contributions from EU projects stems from the COPRAS project (Ketchell, 2007); the third set of recommendations address the standards bodies (INTEREST, 2007), and are as such of indirect interest to the Commission; we end with some overall recommendations.

6.5.1 Recommendation stemming from the INTEREST project

Financial Support and Funding

- Because hardly any research funding organisation considers standards as a legitimate and valuable tool for dissemination, policy makers should integrate standards-related aspects into their funding principles, and promote standards as part of project evaluation and in calls for proposals for funding. Standardisation aspects may be part of the evaluation criteria of the proposal.
- For a higher percentage of normative research, part of an R&D programme's budget could be managed by ESOs (or SSBs) and spent on projects with a potential for standardisation.

¹⁷⁴ COPRAS, 2005b, p.12.

¹⁷⁵ COPRAS, 2006a, p.7.

Positive evaluation of standardisation work

- Considering the public good character as well as the role of standards as a means of technology transfer, the contribution to standards and standardisation should play a role in evaluating research institutions receiving public funding.
- Research organisations should also honour standardisation work more and consider standardisation work as a criterion for internal evaluation, just as patents.

Education and training

- Integrating standardisation in curricula should be encouraged as such knowledge is a pre-condition for awareness in future generations of researchers.
- Training researchers in what active participation entails, and possibly how to co-ordinate standardisation activities in their project is the second step.

Monitoring of R&D Activities

- More comprehensive standards foresight approaches are needed to determine future R&D trends and research policies, which should try to involve active researchers directly via surveys or workshops.

6.5.2 Recommendations relating to EU R&D projects stemming from the COPRAS project

Specifically with regard to improving the interface between EU R&D projects and standards bodies, the COPRAS project recommends^[176]:

- Supportive tools are needed to help projects find the right standards organization;
- Interfacing with standardization should remain an important aspect of European research programmes
- Continuation of COPRAS' efforts are needed to bring European research and standardization closer together
- European research programmes should provide mechanisms to give research projects additional resources in situations where standards work exceeds a project's lifespan;
- The Commission should improve training of its Project Officers in standards issues.

6.5.3 Recommendations aimed foremost at the standards bodies

The recommendations below address the policies of the standards bodies rather than the Commission's standardisation policy, and are therefore of indirect interest to the Commission. They stem from the INTEREST project (2007).

Awareness of standards

Low awareness of the benefits of standardisation work leads to a low participation of researchers in standardization. Awareness can be raised by, e.g.:

- co-locating standards events with scientific conferences;
- raising the perceived value of standards as sources of information;

¹⁷⁶ INTEREST, 2007; Ketchell, 2007.

- highlighting the benefits of participation in terms of exchange of knowledge and opportunity to meet potential collaborators.

Adaptation of standardisation processes

- To better suit the needs of researchers the standards processes would need to be briefer (e.g. ‘New Deliverables’) and focus on pro-active standardisation.
- To avoid delay in establishing a new WG or Work Item before R&D results can be fed into the standardisation system, ad-hoc groups might be installed that follow the same procedures as ‘normal’ WGs but (initially) operate outside the TC/WG structure (or mechanisms like ‘Workshops’ (CEN) or ‘Industry Specification Groups’ (ETSI))
- Temporary individual committee membership would considerably lower the barrier to standardisation for researchers, and would enable them to contribute precisely to those aspects of a standard for which their research is important.

Closer integration of research and standardisation

- Exchange of personnel between research organisations and standardisation organisations should intensify the relationship between research and standardisation.
- Encouraging the sharing of facilities of research and standardisation organisations is an option. This would provide the opportunity to test research results in specific standardisation facilities.
- Co-operation between professional associations and standardisation organisations should be encouraged.

6.5.4 Overall recommendation

Finally, recently some well-founded and useful complementary guidelines have been issued to improve the relation between Research and Standardisation in Europe. These are:

- Standardization guidelines for IST research projects interfacing with ICT standards organizations (<http://www.w3.org/2004/copras/docu/D15.html>).
- Two INTEREST manuals for Integrating Research and Standardisation (INTEREST, 2007): Guidelines for research organizations and Guidelines for standardisation organisations.

We recommend that these guidelines be used to support the improvement of research/standards interfacing in FP7. The European Commission should enable (horizontal) support actions building upon the achievements of the two projects as an onset towards building a more structural and long-term relationship between the two realms, EU pilot projects ought to be instigated and supported that implement and evaluate these guidelines in standards bodies and research organisations.

7. The involvement of users in the standardisation process

7.1 What is the issue?

Users of ICT are not always well presented in ICT standardisation activities. Consumers and SMEs find it difficult or are not interested to participate in standardisation, whereas industry users remain only focussed on their sector-specific interests.

The lack of sufficient user representation in standardisation activities is often being identified as a handicap of the standardisation structure: user needs may risk not to be taken properly into account when developing a new standard resulting in a non-user friendly standard. When setting an EU ICT standardisation policy, tools for enhancing user representation should be integrated. However, it should also be investigated whether user representation is always necessary in every standardisation activity and which level of user participation would be necessary. Possibly, a more differentiated ICT standardisation policy is needed, i.e. one that distinguishes more sharply between the type of users, the type of standardisation activities and the level of involvement.

7.2 Different types of users

Within the group of standards users, a primary distinction can be made between direct users of standards, i.e. standards implementers, and indirect users of standards, i.e. users of standard-compliant products and services.^[177] Moreover, also within these categories there are large differences (See Table, column 2). The following sections will only focus on the indirect users of standards, i.e. individuals and organisations that are making use of standardised ICT solutions. As can be concluded from the table below (column 3), this group of standards users is heavily underrepresented in standardisation activities.

Category		Involved in	
ICT stakeholders		Standards Development	
ICT producers (Direct users of ICT standards, i.e. implementers)	Large enterprises	100	
	SMEs		15
ICT users (Indirect users of ICT standards, users of standard-compliant ICT)	Large organisations		10-20
	SMEs		5
	Consumers		5
	Authorities		25-30

Table: Estimated^[178] proportion of companies/people currently involved in standards development in Europe (blue)

¹⁷⁷ Jakobs (2005).

¹⁷⁸ Estimations of a representative of the European SME organisation (private communication, F. Posthumus, 2007).

7.3 Consumers and SMEs as ICT users

In the following, we focus on ‘political minorities’, that is the different categories of indirect standards users, notably those with little influence, i.e. SMEs and consumers. We will explore whether and how EU policy needs to address these stakeholders. We do so by examining, and where possible challenging, a number of the Commission’s powerful policy assumptions (a description of the current user-related ICT standardisation policy, and the views of SMEs and consumers are included in Annex D – Working Group Reports).

7.3.1 Fiction of balanced national representation

Inclusion at two levels – An important element of openness and democratic feature of the formal standardisation system is its inclusiveness towards minority stakeholders.^[179] Where CEN and CENELEC are concerned, inclusion plays a role at two levels: at the European level and at the level of their members, the national standards bodies. The latter coordinate the ‘balance of national interests’ and the voting on European standards^[180]. Therefore, the inclusiveness of the European system largely hinges on whether or not minority stakeholders participate and have a say in determining the national position.

No real participation at the national level – In reality consumers and SMEs hardly participate in national standardisation^[181]. ANEC’s experience is that “*the national opinions are often determined by business interests and minority views (e.g. from consumers) are “filtered out” by the system. These national imbalances are further amplified at the European or international levels.*”^[182]

No real participation at the European level – The same lack of user representation is true at the European level despite the efforts of NORMAPME and ANEC.^[183] For the moment, we can therefore conclude that the ‘balance of national interests’ cannot serve as a ‘democratic legitimisation’ of European standardisation. Worse, such rhetoric covers up the reality that the national layer cannot be used as a fall-back option for lack of minority participation in European standards committees.

Two further questions – The ‘fiction’ of a balanced representation^[184] raises two questions. Firstly, why does the official Commission position uphold the rhetoric and sustain the policy on which it is based? This question will be addressed in the next section on the default regulatory regime for ICT as set by the Commission. Secondly, is lack of balanced representation at the national level really a problem, and if so, why? This question will be addressed in the section on ‘normative representative democracy’.

7.3.2 Default regulatory regime for ICT

Need for political respectability – The answer to the above question, why the Commission sustains its policy based on the ‘balance of national interests’, partly lies in the need for political respectability in situations where standards are needed for regulatory purposes. Moreover, since the regulatory regime is adopted as default for standardisation in the ICT area, as we will argue below, the rhetoric of a balanced national interest is also more difficult to change.

¹⁷⁹ Commission, Challenges, p.14; Commission, Annex to COM (2004) 674 final, p.5.

¹⁸⁰ Commission, Guidelines, 2003.

¹⁸¹ Commission, Annex to COM (2004) 674 final, p.5.

¹⁸² ANEC, 2006c, p.14.

¹⁸³ E.g. http://www.etsi.org/ictroadshow/presentations/ug_presentation_karine_iffour_cph.ppt

¹⁸⁴ Werle & Iversen, 2006, p.28.

Apart from the use of standards for public procurement, the Commission identifies the three standards application contexts:

- Standardisation in support of regulation/legislation (including New Approach standards)
- Standardisation in support of EU policies in the *ICT area* (e.g. Information Society)

Standardisation in support of the European market (e.g. removing barriers to trade and increasing the competitiveness of European industry)^[185]

In the regulatory context, accountability and political legitimacy of the European standardisation system are important. The New Approach “delegates powers from the legislator” to the ESOs^[186]. To acquire democratic legitimacy, the standardisation process must be open to interested parties. The necessity of democratic accountability is clear in this area^[187].

But (a) is the necessity of democratic accountability equally clear for the setting of policy and market support? And (b) how relevant is the European regulatory context in the field of ICT standardisation anyway? The first question (a) will be discussed in the section about normative democracy.

Relevance of legal context for ICT ? – Regarding the second question (b), there are different ways of assessing the current situation. On the one hand, according to the Commission there is “a whole set of new legislation in which Europe-wide codes of conduct under the aegis of the ESOs are being used” such as the Directive on Data Protection, the Directive on Electronic Signatures, the Directive on E-invoicing, and the new regulatory framework for electronic communications networks and services^[188]. Indeed, standardisation mandates^[189] are used to support these Directives.

On the other hand, in the area of ICT few New Approach mandates are issued. Examining the Commission’s database on mandates in the policy area of ICT, of the twelve mandates none are New Approach mandates^[190]. That is, the regulatory context is hardly relevant for ICT standardisation.

Despite its lack of relevance for ICT overall, the default regulatory regime not only requests political accountability of formal standards outside the regulatory context, but also of other, non-formal new deliverables^[191].

7.3.3 Normative representative democracy

Inconsistency – At present the ESOs have democratic procedures in place for developing formal standards regardless of the expected context of standards use (support of legislation, support of policies, support of EU market). The Commission, which in the past years prompted the ESOs to develop new deliverables in response to the rise of consortia, presently encourages them to extend the inclusive approach to the non-formal

¹⁸⁵ Commission, Annex to COM (2004) 674 final, p.16.

¹⁸⁶ ANEC, 2005b, p.2-3.

¹⁸⁷ Commission, Annex to COM (2004) 674 final, p.5

¹⁸⁸ Commission, Challenges, 2004, p.12.

¹⁸⁹ In the framework of European standardisation the word ‘mandate’ is being used as ‘request’ (it stems from the French word ‘mandat’ and is not related to the English word ‘mandatory’). That is, the resulting standards are voluntary.

¹⁹⁰ The database was consulted 9-3-2007. http://ec.europa.eu/enterprise/standards_policy/mandates/ The only New Approach mandates in the field of ICT are on Radio and telecommunications terminal equipment (1999) and, if one wants, on Electromagnetic compatibility (1989). (<http://www.newapproach.org/Directives/DirectiveList.asp>).

¹⁹¹ see e.g. Commission, Decision, 2006.

and New Deliverables and discusses their possible use in regulatory contexts. There is some inconsistency among these manoeuvres. We focus in this section on the side effects of the Commission's normative stance towards inclusion.

The Commission treats democracy as a self-evident, desirable governance regime for standardisation without making a distinction between the contextual aspects of standardisation.

Necessity of 'democratic procedures? – What do we mean by democracy? Here, it suffices to define the involvement (i.e. participation and influence) of political minorities as the essence of democracy in standardisation. Several explicit and implicit arguments in favour of democracy have already been noted, namely

- involvement of minorities for the purpose of democratic legitimacy in regulatory settings of standards use
- involvement of minorities because the potential economic and societal impact of ICT standards on indirect users is vast; taking into account the requirements of these minorities will improve standards and diminish the negative consequences.
- involvement of minorities in standardisation will increase their support for and implementation of standards, an assumption that will be examined in more detail below.

Arguments pro – The first argument has been discussed sufficiently. Standardisation is here a derivative regulatory activity and therefore requires the same political legitimacy as regulation would, namely democratic legitimacy. Indeed, in these situations a less inclusive approach would seem questionable (e.g. New Deliverables)^[192].

However, the necessity of 'democratic procedures' is less clear where standards are used to support other EU policies (e.g. e-government or industry policies). They need to be argued, and *can* be argued in many cases. For example, those who are affected by a standard should have a say in its development (i.e. the second argument above). As Jakobs (2005, p.5) puts it: "*users (...) are the ultimate sponsors of standardisation (the costs of which are included in product prices). (...) Moreover, users will suffer most from inadequate standards that will leave them struggling with incompatibilities*". User interests and societal interests are most likely to be best furthered by means of democratic procedures (i.e. the notion of 'democratic technology' applies here^[193]).

Arguments in favour of minority involvement can also be of a pragmatic nature, as is the case with the third argument. Here, participation of (sizeable) minorities is viewed as a vehicle for wider standards implementation. However, this argument illustrates the optionality of user involvement: if there were another vehicle to better achieve wide implementation, minority involvement would likely be by-passed.

Arguments contra – On the other hand, there are also arguments that are indifferent to or against a pro-active approach to user involvement. An implicit but often heard argument at the turn of the century was that user involvement weighs down the standards process and makes consensus more difficult. A stronger argument would be that the user interests are already championed by industry, because their livelihood depends on taking user requirements into the process. For example, EICTA, an organisation that represents the ICT and Consumer Electronics Industry located in Europe, closely links their business interest to user expectations^[194]. Moreover, reality also shows that standards which originally developed as specifications in a closed, not particularly democratic environment, may still work very well in addressing user needs (e.g. TCP/IP).

¹⁹² Jakobs, 2006b.

¹⁹³ Iversen et al., 2004.

¹⁹⁴ EICTA, 2006, p.5.

Balanced approach – The current gap between democratic standards procedures and standardisation practice needs to be bridged where regulatory use of standards is concerned (i.e. active democracy: extra effort must be made to realise democratic aims). But, for other uses of standards, such as procurement, policy and competitiveness support, where the democratic route is not explicitly chosen, no change of policy is needed in this respect. Passive democracy suffices - by which we mean easy access to participation by minorities (e.g. no membership fees, no hurdles) without putting in any extra effort to increase user involvement. In the latter case a distinction between types of standards, such as new deliverables, consortium standards and formal standards, is counter-productive^[195].

Whatever choice the Commission makes, ICT standards policy must take into account the actual field of forces such as:

- Europe's dependency on dominant stakeholders. Industry shoulders most of the standards work. It needs to understand and to a degree support the Commission's arguments.
- Dominant stakeholders' access to other standards settings. In practice the ESOs only develop a select part of the ICT standards relevant to Europe. The remainder is either developed in committees of the formal international standards bodies and ICT consortia, or are *de facto* standards. If dominant stakeholders do not support the EU's argument in favour of standardisation-wide user involvement, they will back out.
- The Commission's influence on ICT standardization internationally should not be overestimated.
- Most indirect standard users do not want to participate in standardisation (see below); even direct standard users, e.g. ICT-SMEs, who are aware of what standards are and of their benefits, do not enter when the ESOs open their doors for participation^[196].
- Indiscriminate normative democracy reinforces symbolic user representation.

7.3.4 Do users always want to participate?

Users sometimes want to participate in standardisation but are excluded in a passive way (e.g. too high costs for joining) or actively (e.g. closed group). However, more commonly indirect users -that is, individual consumers and SMEs- do not want to participate, or at least not in all standards areas.^[197] The EU hardly addresses this issue, assuming, apparently, that users would want to participate – and if not, this is due to lack of awareness, which can be created, and interest, which can be raised.

Awareness – Incidental EU projects to raise user awareness have little impact. A more structural approach is needed. This is recognized by many Asian countries (e.g. APEC countries) but is neglected by Europe. Europe dearly needs education about standardization, starting with regular education (e.g. primary school, secondary school, vocational training, university students including e.g. MBA students, PhD students and post-docs, teachers and university professors), but including job training (e.g. for standards developers, implementers, corporate managers, managers of functional units, researchers, policy makers, public administration, lobbyists e.g. for an industry sector, and media people), and education for the wider public^[198].

Not in all areas – “Consumers or end-users do not in general choose to participate in the standards process for all

¹⁹⁵ Jakobs, 2006b.

¹⁹⁶ Workshop Discussion, 1 March 2007.

¹⁹⁷ Jakobs, 2003.

¹⁹⁸ De Vries & Egyedi, 2007.

of the goods they might consume or use.”^[199] Participation is only worthwhile if a particular standard content is crucial for a company’s product or organisational process. Why would the majority of SMEs, who only use IT to support their primary business process participate? SMEs whose core-business lies elsewhere should therefore probably not participate in technology-oriented IT-standardisation (e.g. standards like the basic XML or EDIFACT standards). However, their involvement is crucial for e.g. information content-oriented standards (e.g. XML applications for a particular domain).

Or, as was stated during a SME standardisation seminar: “*EAN [i.e. the ‘barcode organisation’] cooperates with users on standards. We distinguish two kinds of standards: technical standards (e.g. XML) and conventions about how to deal with technical standards. We address the latter. Together with user organisations we explore what users want to use these barcoding standards for and how to deal with them (functional specifications). (...) We help SMEs to specify their needs, to model processes for which interoperability is required, and to develop agreements. The contribution of these companies should be restricted to what they need and do. The translation of these specs into technical options should be assigned to technical people. (...) We want to separate technology (...) as much as possible from the requirements of companies.*”^[200]

Participate during the whole standards process? – What can users contribute to standardisation? There are two genuine user domains, requirements and operating experience^[201]. If users have little inclination to participate because their immediate stake is not clear but a user view is desired, there are three specific periods in standardisation relevant for user participation: the requirements setting stage, the final validation process^[202], and the standards maintenance stage. Their participation could be restricted to these periods.

That is, although participation in standardisation is usually understood as partaking in the whole standard’s trajectory, select participation which focuses on specific moments may better suit the interests of these indirect users and of the standards committees.

There is one caveat concerning the requirements stage, which applies to users as well producers: “*meaningful requirements are not necessarily available prior to system use*”^[203]. Neither stakeholder group has any experience up front, and therefore the expected and stated users requirements may be off target.

7.3.5 Delegating responsibility for the public interest to stakeholders

Delegation principle – It is salient that in EU documents related to standardisation, ICT policy included, hardly any reference is made to the European Commission’s and Member-States’ responsibility to argue public interest issues themselves in standards committees – irrespective of the context of use of these standards (regulation or not). The same applies to the authorities own interests as a large ICT user. This responsibility is delegated and externalised to the European standards bodies and to ‘minority’ stakeholders. The latter two stakeholder categories are called upon to defend e.g. environmental concerns in standardisation (e.g. Commission, General guidelines 2003.)

The ESOs are requested to provide the right institutional conditions for full participation of all stakeholders (Commission, Decision 2006). For this reason the EU has recently decided to provide more substantial

¹⁹⁹ ICT Standards Board, 2005, p.24.

²⁰⁰ Ir. O. van Mechelen. Extract from the round-table debate of the seminar “SME frustrations using IT: Is standardisation the solution?” 25th of October 2002, Delft University of Technology, the Netherlands.

²⁰¹ Jakobs, 2006b, p.33.

²⁰² ICT Standards Board, 2005, p.24.

²⁰³ Jakobs, 2006b, p.33.

financial support to CEN, CENELEC and ETSI. But it also means that the Commission's approach of strengthening the institutional conditions rather than participate and support on standards content (e.g. expertise and influence) will be continued.

Delegation strategy sufficient? – Does this delegation strategy suffice to promote public interest issues in standardisation? Probably not. Inherently the political negotiating position of minority stakeholders is weak to start with. Furthermore, their lack of presence and influence in standards committees indicates that also in practice the current strategy is a flawed one.

In sum, strengthening the conditions for minority stakeholder participation only partly addresses the problem of weaving public interests into standards. Where clear public interest issues are concerned, the input and participation of EU and Member-State level representatives is needed to secure the societal value of resulting standards.

7.4 Industry players as ICT users

Large ICT users – The foregoing section dealt with specific issues relating to so-called minority users of ICT, i.e. SMEs and consumers. This section deals with specific issues relating to the large industry players as users of ICT. The distinction between a large industry player and an SME is the threshold of employees, the turnover and the annual balance sheet.^[204]

Large industrial organisations all heavily rely on ICT. Hence they are concerned by standardisation activities undertaken in the ICT sector. It has been noted that this group of users has not been standing on the sideline but is becoming more and more influential in the standardisation area (see the table above). Indeed, the producers of technology are not only deciding the standardisation agenda, but also the large users of technology, even in the sense that one can speak of a shift in standardisation work from technology producers to large technology users. Examples of this shift are the activities undertaken in the field of electronic invoicing, ebXML (eBES) and health informatics.

The active participation in standardisation work by this group of users is however limited to ad hoc industry-related fields. Only when concerns are at stake for a specific industry, that industry group would become active in the standardisation area. Examples of these industry interest groups are CEFIC (European Chemical Industry Council), COCIR (The European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry), FIEC (European Construction Industry Federation) or EUCOMED (European Medical Technology Industry Association). There is no general ICT industry users group which coherently and consistently monitors the interest of the large users on a cross-industry (horizontal) level.

Concern – Consumers and SMEs have been able to organise themselves on a horizontal (i.e. non-industry specific) level to protect their interests as users when it comes to standardisation (ANEC, NORMAPME). This organised centralisation of interests strengthens the power of the group of users it represents and allows a better protection of their interests. The organisation is able to be accepted as a spokesperson towards public authorities, standardisation organisations and specification providers, ensuring that their voice is heard. Currently, the aforementioned consumer and SME representative organisations are formally accepted as

²⁰⁴ An SME is being defined as an enterprise which employs fewer than 250 persons and which has an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. See article 2 of the annex to the Commission Recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, *O.J.*, L124/36.

stakeholders in the European standardisation process (e.g. through consultation procedures, participation in ESOs (CEN associates; CENELEC Cooperating Organizations or ETSI full member)).

Currently, no organisation exists representing the standardisation stakes of the large industry players as ICT users on a horizontal level. The lack of such a general representative organisation, risks that the voice of the large ICT users is not being heard outside of specific, industry focussed standardisation areas. Furthermore, European policy makers would not be able to benefit from receiving advice from a dedicated group representing large ICT users when setting and implementing an EU ICT standardisation policy.

We would, therefore, recommend large organisations to organise themselves on a cross-industry level for representing their interests as ICT users in the standardisation area. If these industries were able to organise themselves, they could even be part of the policy making process.

7.5 General observations

7.5.1 Participation implies acceptance and implementation?

A main argument for participation of any stakeholder -but in particular direct standard users- in standards development, is that it increases the acceptance of these standards and makes their implementation more likely^[205].

Obstacles – However, there are practical factors, obstacles related to each of the core elements of (a) participation, (b) acceptance, and (c) implementation, which raise doubt about the causality in this line of reasoning:

- (a) There are more forceful reasons than participation to support a certain standard. For example, where competing standards exist, the standard may be chosen by other, important players in the company's value chain; or, the market dominance of a *de facto* standard or the rising popularity of a competing committee standard may determine a standard's use;
- (b) acceptance of a standard and commitment to implement is more likely to depend on the awareness of a standard's importance and on its usability (e.g. simplicity and ease of implementation) than on participation;
- (c) the implementation of standards concerns, in particular, the direct standards users. In EU policy documents direct and indirect standards users are often not distinguished. Therefore, no clear distinction is made between standards implementation and market adoption of standard-compliant products. The "participation – acceptance – implementation" type of reasoning may work for direct standards users, but hardly for indirect standards users. For the latter the link between participation and the adoption of standard-compliant ICT depends too much on intermediate, contingent factors (i.e. participation ...-- adoption).

Need to have distinct policies – In other words, the logic of 'participation in order to increase implementation' has its vulnerabilities. To strengthen the link between participation and implementation, these vulnerabilities would need to be addressed in unison. Moreover, a distinction needs to be made between direct and indirect users, and standards implementation and the adoption of standard-compliant products, respectively. Distinct policies are needed for both.

²⁰⁵ EU ESAP objective; Commission, Annex to COM (2004) 674 final, p.5; ICT SB, 2005, p.24.

7.5.2 Overemphasis on standard 'development' in Europe

Many of the previous assumptions lead to an overemphasis of EU standardisation policy on standards development - to the detriment of attention for standards implementation. For example, in the previous section 'participation in development' is a door towards securing implementation, which distracts attention from specific implementation-oriented measures. Likewise, the implicit adoption of a regulatory regime for ICT standardisation exaggerates attention to representation issues in standards development. User issues related to standards *implementation and maintenance* have received very little attention from policy makers. Moreover, since Europe preferably develops ICT standards at the international level, the emphasis on developing standards in Europe would seem misplaced. This, too, is a reason to focus more on an implementation-oriented ICT standards policy.

7.6 Conclusions and recommendations

Gap – There is a large gap between, on the one hand, the inclusive aims of European standardisation policy and, on the other hand, the low level of actual user participation (i.e. indirect users: IT consumers and SMEs). Users generally do not want to participate. The gap is one between principle and practice. To bridge this gap, attempts have been made to mould practice to fit the standardisation principles.

Failed attempts to bridge the gap – These attempts have largely failed because, firstly, the assumptions on which these principles have been built are questionable, such as user awareness and willingness to participate in standardisation, and the inclusion of user interests at the national level (i.e. the pillar of CEN and CENELEC standardisation).

Secondly, the EU applies inclusion principles indiscriminately, without making a distinction between the different context in which standardisation can take place (support of legislation, of policies, of competitiveness or of other areas). Depending on the context in which standardisation takes place, user involvement may be deemed more necessary than in other areas. The level of democracy needs to be argued and rooted in standardisation practice if policy is to go beyond reinforcing symbolic user representation.

Main recommendation – This section's main recommendation for user-related EU ICT standardisation policy is that policy should specify the level of user involvement that is necessary in the standardisation process and dependant on the standardisation context. In each contextual area, standardisation policy should specify the aspects of user involvement which European standardisation wants and needs (e.g. representation or influence?), which standards for these aspects preferably apply to (i.e. realistically and focused), and in what manner and at what moment user involvement is required (e.g. user representation in requirements, validation and maintenance phase?).

7.6.1 Necessary or desirable user involvement

Where user involvement is necessary, a more substantive and active inclusive approach is needed. From the European point of view, a focus on strengthening indirect user participation at the European level would seem most effective.

Examples of policy focus that strengthen the participation of SMEs and consumers in European standards committees and their position are ^[206]:

²⁰⁶ e.g. ANEC, 2006c; NORMAPME/ANEC, 2007; Jakobs, 2005; Egyedi, 2003; EICTA, 2004.

- support user groups in selecting standards committees dealing with issues of user/public interest (drawing the line between mandated and not-mandated work may be too crude)
- strongly improve the financial conditions for minority participation, and more so where the European Commission delegates responsibility for public interest issues to the European standards bodies and 'minority' stakeholders
- provide for a more active input and participation from the EU and Member-State government representatives to secure the public interest in standards (e.g. EICTA, 2004, p.18)
- support ESOs in allowing user representatives to participate free of charge in all technical committees dealing with standardisation work of public/ SME interest
- support ESOs in making draft standards dealing with subjects of public/ SME interest available free of charge on the Internet
- implement monitoring of national and EU level 'balanced representation' in European standards committees where user involvement is necessary (e.g. ANEC, 2006c, p.3)
- Where user involvement is desirable but optional a passive approach to user inclusion suffices. That is, users must be able to participate but no norms need to be met for representation and influence (e.g. no monitoring takes place). In this area of ICT the distinction between standards source and status is irrelevant (e.g. ESOs formal and new deliverables, consortia, proprietary standards). The Commission may want to mediate for European users with standards consortia on whether free membership can be provided for the umbrella organisations of consumers and SMEs.

Furthermore we would suggest fostering a coherent involvement of industry users: Industry users of ICT should organise themselves as a cross-industry ICT users alliance. This ICT users alliance:

- would be able to protect the general standardisation interests of ICT users;
- would be able to function as a spokesperson to the policy makers;
- could be directly involved in ICT policy and strategy decisions, as this is currently the case with SME and consumer stakeholders.

7.6.2 *Awareness and education*

Were the conditions for user participation to be favourable, would there still be a lack of users in standardisation? Lack of participation by direct as well as indirect users is to a large degree the result of a lack of awareness of the importance and benefits of standards. This is a general problem that is reflected in the shortage of standardisation experts internationally. The shortage of experts will become even more acute as those who at present participate, i.e. mostly people towards the end of their careers, retire.

To address this shortage of experts and want of users, the overall level of awareness, knowledge and expertise needs to be raised. The European body of expertise needs to be strengthened and disseminated in a structural way by introducing standardisation in regular education from the primary school upwards and expanding training for standards professionals.

8. Implementation of standards

8.1 What is the issue?

Although many success stories relating to the use and adoption of EU standards can be noted, it is true that

in the ICT sector many existing EU standards have not been widely taken up by the market. (e.g Hiperlan). The most widely implemented ICT standards have been drafted by non-formal standardisation organisations (e.g. Wifi, XML).

The question therefore arises whether the EU ICT standardisation policy should pay more attention to the exploitation of its results and get more involved in implementation issues.

8.2 Standards are made to be used

Certainly everybody agrees that “*unless standards are used, then the money spent on developing them will have been wasted*”^[207]. At the moment, too many European standardisation initiatives do not find their way to the market. Different reasons can be identified. By way of example we refer to the Hiperlan experience.^[208]

The “Hiperlan” story – The development of Hiperlan fitted in the general climate of the beginning of the 1990s. Following the success of the GSM standard, the general policy at the time was to develop single European radio standards, which then were given preferential market access by regulators through harmonized frequency allocations.

However, the scope was completely different. Hiperlan did not fit into any infrastructure, or, more precisely, in any ‘network compatibility framework’. Its usage would have to create its own way of interacting, much in the same way as IEEE 802.11 did.

Fuelled by the success in technological terms of GSM, Hiperlan was a technically superior piece of work that would need a strong effort from the industry for its implementation. But this time there were no guarantees of purchase of equipment by operators and the market would have to be created by the purchases from the individual users throughout the world. The technical possibilities of the standard would inevitably be used in the future. However, they were far ahead of the state of the art in the Internet (for instance in relation to quality of service) and the state of the art of the computer applications. After almost fifteen years they still are. Hiperlan is among those applications that attract criticism for being a technological gadget that users might not find of interest.

By contrast, IEEE 802.11 was a very simple standard that could be implemented easier (meaning lesser R&D investment). The chipset was created by the US industry and its availability contributed also to a greater disbelief of Hiperlan.

It is interesting to see the pragmatic approach of the IEEE 802.11 standard. It works but it does not offer any guarantees in terms of quality of service. This profile fitted very well in the state of the art of the Internet at the time (and even today). New versions of the standard are now being produced to tackle this problem and some of the solutions of Hiperlan are being adopted.

Possible reasons for failure – In conclusion, the lack of belief of the European industry led to a lack of consensus and no investments were made to incorporate the unique chipset built in IT equipment. This is a problem of the industry itself and could not be overtaken by any specific public governance policy. Some questions can be asked in helping to understand the process and provide guidelines for a future EU standardisation policy:

²⁰⁷ Keith Dickerson, in a position paper written as a contribution for this study.

²⁰⁸ The Hiperlan case is based on a note from the EU (Note for the file, subject: “*Reasons for failure of the Hiperlan standard: should we blame ETSI?*” EU, 24 May 2004.) and the personal interpretation of the Project Core Team.

- Why did the industry invest in such a visionary standard if they did not want to implement it after all?
- Was the industry the real leader of the standardisation process?
- Had the obligation to implement the standard existed, would industry have been willing to spend efforts on producing the standard that would not be published due to lack of implementation?
- Were the persons involved directly in the standard definition, using resources (funding) which were alien to industry, creating therefore a specification without the sensitivity of an industrial project?

8.3 Reasons for success

Although the good technical quality of a standard, should be a prime reason for it to be taken up by the market, the abovementioned example of Hiperlan shows that quality of the standard does not always suffice for also becoming successful in its implementation. The following actions have been identified as possible additional success factors for advancing the uptake of EU standards and deliverables (outside of the New Approach framework): “Marketing and education”, “Public procurement” and “Free availability of standards”. We will further elaborate on these critical success factors below.

8.4 Marketing and education

New Approach model not necessitating marketing efforts – Until recently, European Standardisation Organisations and EU policy makers did not have to be too much concerned about the implementation of their standards, because standardisation work was heavily focussed on the New Approach model. Indeed, although the New Approach standards referenced in legislation are to be adopted on a voluntary basis, the market usually chooses to implement these standards because of the presumption of conformity with the essential requirements of the law.

Other deliverables need more efforts to be taken up by the market – Now that the European standardisation process is more and more being used for creating standards outside of the New Approach model, especially in the ICT sector, a legal incentive for the market to adopt European standards no longer exists. The non-New Approach standards (whether they are European Norms or new deliverables) are now competing with other standards available on the market. It is noteworthy that even standards or new deliverables that are produced following more or less the same principles as the New Approach model (e.g. electronic signatures in support of the eSignature directive, and referenced in the Official Journal), are not able to get the same attraction as New Approach standards.

Although extensive marketing activities have already been undertaken for promoting the use of European standards and other European standardisation deliverables, it is felt that more work could be done in this field.

Promotional activities – On the one hand, more promotional activities should be undertaken, both within the EU and on a global or regional level depending on the choices made (see “A Regional policy in a global context” on page 58.). Too often, standards tend to be forgotten after they have been created. This is especially the case if the initiative to draft a standard does not come from the market itself (as is the case in consortia and other specification providers) but as a result of policy action (e.g. standards drafted to produced products and services in line with European data protection legislation).

Substantive measures – On the other hand, more substantive measures should be made as regards to the way European standards are currently being drafted. We are of the opinion that it is very difficult to have the market adopt European standards, if they do not feel they are actively and directly involved in the standards

setting processes themselves. Therefore, it will, also from a marketing perspective, be necessary for ESOs to co-operate more closely with the market players.

Education – As to education, we believe that there is still much room for educating market players, researchers and direct users of standards on how to implement European standards. For this discussion we refer to the section on “The involvement of users” on page 93.

8.5 Public procurement

Public procurement is an important sector of the European economy, entailing 16.3% of the Community GDP. Were public procurement contracts consistently to make use of European standards, market adoption of European standards would be flourishing. In reality, public authorities do not always refer to European standards when launching a tendering procedure.

We are of the opinion that it does not make sense to oblige member states to make reference to European deliverables simply for the sake of it. The quality and usefulness of the European deliverable should be such that the choice for referring to them is self-evident. We are of the opinion that implementing our other recommendations, especially those with respect to the more direct involvement of other players, European standards would become more competitive vis-a-vis other global standards.

On the other hand, if European institutions and national governments, the actual initiators of most of the EU standardisation work, do not make use of the European deliverables, how can they expect the market to use these standards? Therefore, we think that governmental bodies indeed should be obliged to make use of European standards, unless they can explain that other standards are more relevant for a specific circumstance.

If we look at the legal framework, it is noteworthy that public authorities are currently already being obliged to refer to European standards in their public tendering procedures.

Council Decision 87/95 – Council Decision 87/95 contains a clause stating that “[...] *Member States shall take the necessary steps to ensure that reference is made to European standards and European prestandards as described in Article 2 (b) [and] international standards when accepted in the country of the contracting authority in public procurement orders relating to information technology so that these standards are used as the basis for the exchange of information and data for systems interoperability.* [...] (article 5).

Public procurement directives – Furthermore, the European Public Procurement directives^[209] also explicitly require public administrations to refer to standards in their tendering documents. Public administrations are all public authorities (Member States, regional or local authorities and their associations), public organizations and undertakings, and also undertakings operating in water, energy, transport and the telecom sector, on the basis of special rights granted by the Member State.

In the contractual documents, the contracting entities must refer to national standards implementing ENs, European Technical Approvals, or common technical specifications (specifications drawn up by a procedure recognized by the Member States for uniform application in the Member States and published in the Official

²⁰⁹ The Public Procurement Directives (as defined by the so-called “Legislative Package”) refer to the specific obligations of the public contracting entities, the various procedures (open, restricted, negotiated) that must be followed to award contracts (supply, civil engineering works, services) and the establishment in the European Union (EU) of a system of legal remedies in order to examine appeals of the contractors.

Journal). When an EN is available, a derogation from the obligation to refer to this EN is permitted only under certain strict conditions.^[210]

However, it looks like public administrations do not always refer to European standards in their tendering procedures. We believe that this lack of referring is not necessarily caused by a well-formed opinion about the quality of the relevant European standard. We believe that it is probably closely linked to the marketing issue of European standards. Many international standards are better known than European standards and are being referred to by the tendering authority.

Public procurement by EU institutions – As to the European institutions, it looks like public procurement procedures do not always refer to European standards in their tendering procedure (e.g. IDABC). However, European institutions are bound by more or less the same rules as the above described public procurement procedures.^[211] It should be further investigated to what extent internal actions can be taken for informing colleagues from European institutions about the existence of relevant European standards or for convincing them of the value of these standards.

8.6 Intellectual Property Rights

Difficult balance - One of the founding principles of EU standardisation policy is that “standards are produced by everybody to be used by everybody”.^[212] This means that the ultimate objective (and ideal) of the current EU standardisation policy is to elaborate standards that reconcile in a rational way industry’s priorities with public interest objectives so that the end-deliverables of standardisation could be used without unrealistic proprietary restrictions as widely as possible. On the other hand, the products of industry and of the mind in Europe and worldwide are based on the respect and recognition of proprietary rights.

The relation between standardisation and IPRs is very far from trivial. Firstly because of the difference in philosophies, and secondly because of the undeniable right of a person/organisation over its creation. More precisely:

- (a) the underlying philosophies of standardisation and IPR-protection are seen as opposites. Whereas standardisation intends to put ideas into the public domain, protection of IPR makes them private property; and
- (b) if the legal framework of standardisation is blurred, the legal framework recognising private rights over private creations is on the contrary very clear. A set of international conventions determine the

²¹⁰ This is the case if the innovative nature of the project makes the use of products covered by the EN not appropriate, the EN does not include provisions for establishing conformity, or if technical means to do this do not exist, or by using the EN, the contracting authority would be obliged to buy products incompatible with equipment already in use; pay a disproportionate cost; or encounter disproportionate technical difficulties (but only as a part of clearly defined strategy with a view to change-over, within a given period, to ENs).

²¹¹ See article 5.6 of Council Decision 87/95. See also Council Regulation (EC, Euratom) No 1605/2002 of 25 June 2002 on the Financial Regulation applicable to the general budget of the European Communities and Commission Regulation (EC, Euratom) No 2342/2002 of 23 December 2002 laying down detailed rules for the implementation of Council Regulation (EC, Euratom) No 1605/2002 on the Financial Regulation applicable to the general budget of the European Communities.

²¹² Taking into consideration the importance of intellectual property rights (IPR) in the standardisation debate and the amount of time that, therefore, should be spent on analysing and assessing the IPR issues, the study team and the Commission decided to only touch upon some issues without going too much into detail. By doing this, sufficient time would be left for focussing on other important aspects. As it is unquestionably a crucial issue that should be handled, and not forgotten, some basic principles and facts are described in this section.

scope and content of the protection of patents, copyright and semi-conductor products, to state only the types of property that are considered as relevant to standards-setting work. Such principles have been further implemented in Europe, basically through Directives that were transposed in national law^[213].

Although there are differences in philosophy between standards and patents, there are no exceptions on the application of the intellectual property rights of any patented technology used in a standard. In other words, when disputes arise, the current bottom line is always court decisions as for any other copyright infringement event with the relative (minor) importance of technical or market interests.

Efforts to find the right balance – In an attempt to create a new inter-relation between standardisation and patent holding rights, some efforts are being made both in the US and Europe. These are still on-going efforts at a rather unstable stage, so it is fair to say that a new reality is still quite far in time. There are basically three areas where these efforts are being made:

- definition of IPR policies for the organisations to clarify how things work in practice in that particular organisation.
- attempt to create “good practice” rules and procedures to prevent “ambushes” by IPR owners that sit quiet while the standard is being defined.
- attempt to change the “undeniable” nature of the ownership of an IPR for ICT related items in order to prevent “ambushes” in a definitive way.

8.6.1 Basic legal principles

The core essence of the European legal instruments referred to above, expresses the undeniable right of the creator/author over his creations. Such right can primarily be limited only with the creator’s / author’s will. Right holders are in principle free to grant or exclude licenses on whatever exclusivity or territorial basis they wish. A refusal of licenses cannot justify alone (without the presence of other factors) contractual abuse or anti-competitive behaviour, such as abuse of a dominant position.

Exceptions to the unlimited right of creators to determine the way in which their deliverables can be used, as well as to take the moral and material benefit from their commercial exploitation, are inserted in the law itself. Such a well-defined case is determined, for example, in Directive 91/250/EEC (the Software Copyright Directive) whereby exceptions to the exclusive right of copyright holders are justified for interoperability reasons. In the same direction, the WTO Agreement on trade-related intellectual property rights defines specific safeguards in case of compulsory licenses regarding inventions protected by patents (art. 31).

FRAND – To facilitate the integration of proprietary elements in the ESOs’ IPRs when appropriate, the Commission determined a while ago a set of rights and obligations to be respected by both standards makers and intellectual property right holders^[214].

In this respect, European standard-making bodies must strive to give access to all persons wishing to use Eu-

²¹³ Basic EU law on industrial and intellectual property related to our topic include: Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society, OJ L167 of 22 June 2001; Directive 91/250/EEC on the legal protection of computer programmes, OJ L 122 of 17 May 1991; Directive 2004/48/EC on the enforcement of intellectual property rights, OJ L 157 of 30 April 2004; Council Directive 87/54/EEC of 16 December 1986 on the legal protection of topographies of semiconductor products, OJ L 24 of 27 January 1987.

²¹⁴ *Intellectual property rights and standardisation*, Communication from the Commission, COM (92) 445 final, 27.10.1992, p.32.

ropean standards. The right to implement the technology referred to in a standard, should be made available on “fair, reasonable and non-discriminatory” terms (FRAND rule), regardless of whether the users participate in the work of the standard-making body or not, but taking into account the circumstances of the use. While the standardisation work is carried out, best efforts should be made to identify holders of any IPRs that may be referred to the standards under preparation. Towards right holders, the ESOs should grant “fair conditions” especially regarding the time allocated to them to report on proprietary work that may conflict with the standards under development, as well as when negotiating licenses with them.

On the other hand, right holders should use best efforts to identify in a timely manner any IPR which may have an impact on the undergoing standardisation work. They should offer fair, reasonable and non-discriminatory monetary or non-monetary terms for the license to use any IPR. Licenses that may be granted in this sense must basically be regarded as irrevocable.

Example ETSI – The ETSI Intellectual Property Rights Policy^[215] is a clear example of the description of the rules that apply for IPR. This document also highlights the type of difficulties that occur when an IPR owner of a patent seen as essential is not prepared to license it. Most strikingly, even in the case of the organisation being a member of ETSI, problems are not minimised (if the organisation is not really prepared to license the IPR).

Unfortunately these problems are not exclusive to ETSI and no standard development organisation can say it has the problem completely solved. These last paragraphs covered only the area i) identified above. In what follows areas ii) and iii) will also be analysed. We will see that the relation between standards and IPR is far from trivial, and that it will only get worse over time.

8.6.2 IPRs: values and threats

The ambush problem – In its purest form, the idea behind IPR is very valuable: companies invest heavily in creating know-how and they should be rewarded if their findings prove to be valuable to the society in the future. The patent system was created to organise the process. Unfortunately, society has been changing and taking secondary advantages of the system that is in place.

As *Brian Kahin* points out^[216] as standards have expanded in scope and significance, requirements for patents have been lowered, resulting in more patents and therefore more conflict with standards^[217]. As a practical matter, the standard of inventiveness or “non-obviousness” is now close to mere novelty. This lowered threshold means the patent system is less about ground-breaking invention and more about aggregate R&D investment, which will be roughly reflected in the size of a firm’s patent portfolio.

The low level of inventiveness not only increases the number of patents that may be implicated in a complex product, it also dilutes the value of the patent for conveying knowledge. From the perspective of a non-producing patent holder with no need for cross-licenses, threatening to stop all possibly infringing

²¹⁵ ETSI Directives, Version 21, December 2006, http://portal.etsi.org/directives/directives_dec_2006.pdf

²¹⁶ Brian Kahin, “*Common and Uncommon Knowledge: Reducing Conflict between Standards and Patents*”, appearing in Sherrie Bolin, ed., *The Standards Edge: Golden Mean*.

²¹⁷ According to the author (*ibidem*), legal and market reasons explain this decline: “*Prior to the (US) 1952 Patent Act, an invention had to show a “flash of creative genius” to merit a patent. Drafted by patent attorneys on assignment as congressional staffers, the 1952 Act required the patent office to grant patents unless it could show that the subject matter was obvious to a person having ordinary skill in the art. The threshold has been lowered still further by the Federal Circuit. In the case of combinations of old elements (which is the case for most innovations in IT) – a patent must be granted unless there is some documented suggestion or motivation to combine them.*”

uses is the highest and best use of the patent. The private value of the patent is then nearly equal to the staggering costs that can be imposed on the rest of the world assuming the holder owes a duty to its shareholders to extract the full value of the patent. The best way for the patent holder to realise this opportunity is not by participating openly in the standards process but by hiding from it. Non-participants have no obligation to disclose the patent and no obligation to license at all, RAND or otherwise. By surreptitiously tracking deliberations of a standards process, a non-participant can shape a patent application to capture the standard with no adverse consequences. Sadly, the more open the process, the more information will spread to non-participants and the more vulnerable the standard will be.

This type of behaviour, called “ambush” above can take an even more regrettable form. IPR owners do not exercise their right at a certain time because the use of their patents is residual, until a moment that a boom happens and makes the difference. Sometimes this happens over quite a long period of time. Some current examples of this way of behaving are related to JPEG, to the digital television in Italy, and to the use of CDMA in the third generation of the cellular network.

The value of the common knowledge is in its ubiquity, but that is also a measure of its vulnerability. Hidden patents can undermine rational business expectations of millions of integrators, packagers, resellers, service producers, and millions of IT users across complementary products and services and all the way down the value chain. Although intellectual property is touted as an incentive to investment, the irony is that it can trigger the wrong kind of investments – investments in information arbitrage that can destroy vast amounts of wealth. Patents can provide incentives to game the system, to obscure patenting activity, to speculate, to lurk, and to surprise and ambush companies that produce real products for real markets.

The result is a systemic bias against open collaborative innovation and in favour of bad faith behaviour and legal manoeuvring. All the more remarkably, this is happening in a sector where the value of individual patents is diluted by numbers and generally secondary to other means of securing returns from innovation. Reforms to mitigate the threat of extortion in the IT sector have been opposed by industries (biotechnology, pharmaceuticals) where individual patents are extremely important – and by the patent bar, which is economically predisposed to keeping patents as powerful and plentiful as possible.

Today, we have a system where patent holders have all the cards, while those invested in standards face unknown and practically unforeseeable “land mines” in the form of patents. Standards, too, deserve protection by virtue of the great investment that is needed to make IT products, systems, and infrastructure work efficiently. If patent holders are going to threaten investments on this scale, they should be obliged to make their rights known in a timely manner – or lose them against those who do no more than implement an open standard. It is far more efficient to put patentees on notice of a relatively small number of open standards than to put multitudes of standards adopters and users on notice of multitudes of patents.

This should not place an undue burden on patent holders. At least initially, the credentialing and advertising of standards efforts should be limited to standards that are open in the strongest sense of the word (i.e., nonproprietary or royalty-free). This recognises the special vulnerability of nonproprietary standards while it circumscribes the universe that patent holders are responsible for knowing. This narrow scope will provide an opportunity to work out any problems in a formal clearance process.

It can be seen from these paragraphs that although the relation between standards and patents is problematic, the patent system is performing well in other areas such as biotechnology, pharmaceutical industry, etc. It is unlikely that serious changes will take place just because of the ICT case.

Solutions? – Putting the burden of disclosure to the patent holder is not trivial either. One first problem would be the definition of items that should fit this new way of facing IP rights. What would be an ICT item or patent? Another problem is the amount of work involved. Kahin just cites Frederick J. Telecky of Texas Instruments on this issue:

TI has something like 8000 patents in the United States that are active patents, and for us to know what's in that portfolio, we think, is just a mind-boggling, budget-busting exercise to try to figure that out with any degree of accuracy at all. ^[218]

Undoubtedly these new rules might solve the ambush problem. However they are very disruptive to the current state-of-play in terms of intellectual property rights. Unless a worldwide change takes place, individual steps either in the US or Europe are likely to fail.

Other approaches, such as the Consumer Project on Technology's "Proposed WIPO Protocol for the development of Open Standards" ^[219], address the need to clear standards from ambush by patents. The rationale and mechanism for clearing standards against patent trolls is essentially that of laches – an equitable principle that says that right-holders should not sit quietly on their rights while huge investments are mistakenly made on top of them. Patent holders should not enjoy windfall returns by reaping what they have not sown.

The rationale is pretty much on leading the problem to the moral playing field. In very concrete terms, when problems really happen, the final decision will always be from the court of law and ambushes will win.

In the meantime an alternative might be to assemble information on patents to try to prevent ambushes. If the problem is complex at the scale of an organisation, trying to solve it at worldwide scale might be really challenging. Another problem is the efficiency of identifying relevant information.

New initiatives – ETSI is currently making an effort to have an IPR online database with information on IPRs which have been notified to ETSI as being Essential, or potentially Essential, to ETSI standards. It is important to realise that this database contains information received. I.e., ETSI does not check the validity of the information, or the relevance of the identified patent applications to the ETSI standards; and no investigation or IPR searches are carried out by ETSI.

As a final point it is also noteworthy that a reform is being progressed in the US Congress. A proposal has been made to reform the standards process so that stakeholders get together with IPR holders prior to a standard being developed. The royalty regime should be considered at the same time as the competing technologies that are available to be used in the standard being developed, and could result in a 'bidding down' of IPR license fees for the winning technology ^[220].

These types of initiatives are again very biased towards the moral part of the problem assuming goodwill from all players.

²¹⁸ Frederick J. Telecky, "Statement at FTC/DOJ Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy," FTC/DOJ hearings, February 28, 2002, <http://www.ftc.gov/opp/intellect/020228telecky.pdf>.

²¹⁹ Consumer Project on Technology, "Proposed WIPO Protocol for the Development of Open Standards (PDOS) Version 1.0," <http://www.cptech.org/a2k/pdos.doc>

²²⁰ FTC Chairman, Deborah Majoras, is encouraging these discussions and states that perform such ex-ante discussions would not be treated as anti-competitive and restraints on trade (see at: <http://www.ftc.gov/speeches/majoras.htm>): as stated in *Keith Dickerson*, in a position paper written as a contribution for this study.

Probably a moral rule of conduct would pave the way to a future reality based on good practices, but the subject of IPR deserves a profound study in European terms in preparation to another one in world terms.

GSM: A market example – Ambushes are not the only problem between IPR and standards. The GSM case described below just shows how IPRs can be used just as any other mechanism to drive businesses and set new economical realities in the world.

The European GSM initiative is indeed also interesting to analyse from an IPR perspective^[221]. The telecom operators committed themselves to keep the standard “open”. In more concrete terms, the Memorandum of Understanding (MoU)^[222], signed by the operators stated that *‘the signatories shall coordinate their policies on intellectual property rights as far as possible’* (‘to ensure the viability’ of GSM, art. 9). This is an altogether vague provision. Article 5 is clearer in stating that the signatories *‘shall support the open (non-proprietary) ... interfaces’*. When the equipment manufacturers enter the movement (and the standardisation shifted to ETSI) they were not bound by the MoU and patents could, and have, become a problem. Motorola held nearly 60 of the 130 patents involved and refused to cooperate in cross-licensing.

The reality in Europe was different from the US in relation to patents. The research of the state-owned telecom operators was so tied to quasi-vertical integration that: (a) not much was patented, and (b) patents were freely licensed among (related) suppliers and component producers. Philips even made its speech decoder patents freely available to the GSM community.

Motorola decided to cooperate (instead of having a completely proprietary approach) because the operators’ invitation for tender had to be based on the MoU (clearly prescribing a non-proprietary approach). Motorola had to accept it since it was not interested in staying away from a predictable promising market. The solution found was to engage in cross-licensing with leading companies. This had the effect of creating a ‘proprietary club’, shutting down the door for smaller, or potential, entrants. The analogue market was pretty divided amongst a large number of equipment suppliers (also helped by the fact that it was technically fragmented). Motorola’s move set high barriers for other enterprises to enter the market, and by 1990 only the members of the ‘club’ were able to conquer a non-trivial market share. None of the small analogue suppliers has been able to survive or occupy more than a niche position in the GSM market. This is strongly suggestive of entry deterrence tactics, despite the open and seemingly pro-competitive nature of the MoU. This example shows another facet of the complexity of the problem.

8.7 Free availability of standards

Another aspect related to intellectual property rights is copyright on the standard itself and its licence to use. It is noted that some SDOs sell the standards they produce (license for money) while others just allow free access to the electronic form of the standards (license for free).

CEN/CENELEC Copyright policy – The CEN and CENELEC copyright policy can be summarized as follows: the contributor to a standard awards an exclusive license to CEN, CEN grants exclusive exploitation rights to its members, and the members sell the standard to the interested parties.

²²¹ See also the description of the GSM story in PART III.4.4.1 “The Telecommunications case” on page 71. Pelkmans, Jacques (2001). *The GSM standard: explaining a success story*. Journal of European Public Policy, 8:3 Special Issue 432-453.

²²² Signed in September 1987.

More precisely, according to the CEN Guidance on Copyright ^[223]:

- (a) The moral right of existing material contributing to the development of a standard remains with the originator. It is the exploitation of these rights which is assigned to CEN.
- (b) The author awards an exclusive license to CEN, save his personal use of his contribution for his own (non commercial) purposes.
- (c) Original drafter may use his contribution for his own purpose (internal company processes, documentation, design and specification, etc.).
- (d) The assignment of rights to CEN is confirmed by written agreement.
- (e) The established practice is that no payment is made for the assignment, nor are any individual contributions acknowledged in the standard.
- (f) In practical terms, if a person brings a significant contribution for inclusion in a standard, he has to sign the Exploitation Rights License Agreement. This agreement grants to CEN the irrevocable, non-exclusive license to use the contribution within the limits specified in the agreement. There is no litmus test for “significant” contribution. The degree of importance of each contribution represents basically an ad hoc *judgement*, based also on common sense. As guiding principle, it is stated that if the individual contribution makes more than 5% of the standard, it may be “significant”. Another assumption is when an individual contribution is so important that a normative reference would need to be made to it in the standard if it was not included.

According to its internal regulations, CEN/CENELEC grants exclusively and in totality to its members the assigned exploitation rights for the purpose of publishing, reproducing and distributing by any means the CEN/CENELEC publications in accordance with appropriate agreements ^[224].

CEN copyright and exploitation right principles also apply to new deliverables, such as CWAs. Registered participation in a Workshop is subject to having accepted the transfer of exploitation rights to CEN. But contrary to the ENs, CWAs can be accessed freely if the workshop was sponsored.

Therefore, the licence price of the standard is used as a form of income for the National Standardisation Bodies, after having received it for free from the contributor. It can be said that the contributor will have its rewards from the IPRs, or the future commercialisation of the product. An issue that is important to investigate is whether free dissemination of the standard will not contribute more to a greater impact of the standard with all the consequences analysed below. This might be especially true for the ICT area.

ETSI copyright policy – Regarding the third ESO, the ETSI reality is different and ETSI standards can be freely downloaded from its website.

ICT sector different from other industry sectors – A characteristic of ICT is the participation of an active and broad community in the development of products, ideas, solutions, etc. It is not a community as closed as in other standardisation areas. In the past, standards were bought by interested parties that found the investment worthwhile given the expected profits on manufacturing the products. This is not the business model for ICT. Free availability of standards by certain organisations has led to a greater dissemination of

²²³ Downloadable from <http://www.cenorm.be/boss/supporting/reference+documents/reference+documents.asp>.

²²⁴ Section 9, Part 2 of CEN Internal Regulations.

the specifications and independent work on improving them. By becoming an object of study, suggestions for changes coming from outside the original organisation, just help make the standard more popular, and improve it. TCP is a case in point. It has become a very powerful piece of the current success of the Internet. Improvements were so relevant that no competing standard got such level of sophistication and efficiency. It should also be stressed that this “independent” and free work could not have been made by any single enterprise due to the amount of investment they would represent.

Over time, the importance of the free availability of standards has caught the attention of various SDOs. IEEE, for instance, has fees on its standards, but decided make the most popular ones free of charge after a certain (short) period of time. ETSI went even further, and has its standards free just after approval.

The situation in Europe is quite complex. NSBs disseminate EN and charge for them. Other deliverables such as CWAs are generally free. The current business models, if they exist at all, are quite cumbersome. Consider the following example which without being the rule for CWAs, nevertheless is reality. Certain CWAs are freely available. However if one wants to know who participated in its definition, one has to purchase this information. By way of, consider CWA 14167-1 on digital signatures:

A list of the individuals and organizations which supported the technical consensus represented by this CEN Workshop Agreement is available to purchasers from the CEN Central Secretariat.

Or CWA 15292 on data protection that states:

A list of the individuals and organizations which supported the technical consensus represented by this CEN Workshop Agreement is available to purchasers from the CEN Management Centre. These organizations were drawn from the following economic sectors (Oil, Law, IT vendors, Automotive, Telecommunications, Consultants, Health and Data Auditors).

Concern – We notice that one of the obstacles in the ICT area, especially in the research area, is that the mere obtaining of a standard, without implementing the specifications in products or services, is not free of charge. National Standardisation Bodies charge a fee for sending a copy of a standard. Although the fee is not always very high, asking a price for downloading a standard, without implementing it, invokes a negative reaction from the ICT community. If standards are not being downloaded, their contents are not being discussed, and the standards lose an important means of gaining more visibility, with all the potential consequences to successful implementation.

New business model – In terms of policy it is important to realize the business model underpinning each area, and for ICT all European standards (for all types) should be free, subject to the usual copyright rules of not modifying them. This might pose some problems to the business models of the National Standards Organisations. However an inappropriate business model is also a reason for failure, and new forms of income must be devised.

In this respect, it is interesting to consider the case of scientific literature publishers. The reality has changed dramatically. Nowadays, the impact of digital libraries make market predictions difficult. Editors try to conceive new business models based on the importance and relevance of their titles and the interest of the market. Agreements with large clients (sometimes an entire country) are common, and are a way to preserve the business, once based on the paper edition.

Another interesting consideration is that consulting legislation is free of charge. By contrast, standards are referenced in law, however citizens have to pay for consulting them.

8.8 Conclusions and recommendations

We believe that critical success factors for the implementation of standards are efforts undertaken in the area of marketing and education, public procurement and the availability of the standards.

Although extensive marketing activities have already been undertaken for promoting the use of European standards and other European standardisation deliverables, more work should be undertaken for promoting the deliverables on a European but also on a global scale. Furthermore, we believe that the industry should be more directly involved in the standards setting processes. Without active participation of the industry, industry players will have no incentive to implement these standards in their products and services. As to education, we refer to the section on “The involvement of users” on page 93.

Public procurement procedures already contain obligations for public authorities to refer to European standards, both at the EU, national and local level.. Still, we notice that not all public authorities chose to refer to existing European standards but instead refer to competing standards. We believe that this is due to a lack of knowledge of the existence of relevant European standards, and public officials should be made more aware of the European standards portfolio.

The relation between Intellectual Property Rights and Standards is complex and the different players have not achieved a satisfactory framework which avoids most of the current problems. It is expected that the problem over time will become more complex rather than disappear. Therefore, a serious study must be performed in Europe and taken at world level.

As to the availability of standards, we are of the opinion that the business model of having an income by selling standards is no longer appropriate to ICT. The input from several communities (research, open software, etc.) is each time more relevant and the free availability of standards is a necessary condition for standards' visibility.

9. Complexity of the ICT standardisation landscape

9.1 What is the issue?

The current EU ICT standardisation landscape is a rather blurred landscape without clear borderlines. The feedback received through the survey of interested players and the discussions between the relevant players showed that much confusion exists relating to the standardisation processes, procedures and deliverables. This lack of clarity is mostly due to the organic response by the EU policy makers and ESOs towards the challenges imposed by the ICT landscape resulting in a patchwork of ad hoc rules and practices. It is, therefore, for non-specialists in the field difficult to gain a clear understanding of the EU ICT standardisation landscape and to react appropriately.

9.2 Complex legal framework

The ICT standardisation activities in the world have been changing dramatically over the years. In terms of the European legal framework, the major references (Directive 98/34 and Council Decision 87/95) are already quite old, and the reality is now very different. The afore mentioned legal acts have been governing, at a satisfactory level it must be said, the traditional areas of standardisation, through the legal technique of the New Approach. Nowadays, the legal model implemented by the New Approach reference acts and implementing Directives is seen as not entirely meeting the new legal and policy requirements of the ICT area.

EU policy makers and ESOs have already been very active in adapting their policies and procedures to the new reality. However they are constantly confronted with the boundaries of the legal acts limiting them in their efforts. The result is that the very efficient, “lean and mean”, standardisation system has been loaded with practices for responding to the new challenges that do not necessarily find their legal basis in the Directive or the Council Decision. These include consultation of stakeholders by the Commission prior to issuing a mandate, and mandating outside of the New Approach. An incoherence between ad hoc practices and the legal framework leads to an ambiguous system resulting in legal uncertainty for all players involved and an inefficient ICT standardisation system in the EU.

The feedback received through the survey of players and the discussions between the relevant stakeholders have shown that there is indeed a lot of confusion relating to the standardisation processes, procedures and deliverables. This lack of clarity is due to the organic response by the EU policy makers and ESOs towards the challenges imposed by the ICT landscape.

As one respondent representing the industry put it: *“The existence of multiple ESO’s/consortia has created a confusing quilt-work of interests in certain domains, particularly “interoperability”. We also find the involvement and influence of European Commission representatives creates additional confusion. We believe better overall coordination and more defined responsibilities regarding standardisation amongst the ESO’s/consortia is necessary. For example, both CEN and ETSI have had interoperability forums operating from time-to-time.”*^[225] Or as one national authority identified as a drawback of the current EU ICT standardisation landscape said: *“The proliferation of competing standards given the work produced in consortia, the uncertainty about the legal value of standards in areas not covered by the New Approach, the lack of education and awareness actions about standardisation activities carried out by ESOs”.*^[226] This lack of transparency raises concerns as one consumer representative pointed out in its response to the questionnaire: *“From a consumer point of view, the lack of transparency and consensus involved raises concerns because they impede proper consumer participation.”*^[227]

9.3 Complex ICT standardisation policy

Although it may seem as if there is one consistent EU ICT standardisation policy, this is not true in reality. Within the ICT area, and because of the special nature of ICT, throughout the years different fragmented steps have been undertaken by different participants (ESOs, directorates general) for encompassing the needs of the ever changing ICT landscape without, however, taking into account a long term strategy.^[228]

We acknowledge the various efforts that have been undertaken, such as the 2006 Work Programme, for trying to establish a coherent policy. Still, we feel that the EU ICT standardisation policy is no longer one clear long term strategy. The current ICT standardisation policy is characterised by symptomatic responses to evolving challenges, and has lost its holistic approach. Different Directorates General may have different agenda’s and policy objectives and are using different tools for supporting ICT standardisation in a specific area. Examples are the non-consistent use of standardisation terminology in legal documents^[229] and the use

²²⁵ Questionnaire, the respondent did not want to have his identity made public.

²²⁶ Questionnaire, Slovenian Institute for Standardisation.

²²⁷ Questionnaire, ANEC.

²²⁸ See also PART II.5 “Intermediate Conclusion” on page 52.

²²⁹ At an EU level, standards are defined in a number of Community legal acts, although not in a totally uniform way. Amongst these acts: EC Directive 98/34/EC, art. 1; Council Decision 87/95/EEC, art. 1(3); Annex III of Directive 93/36/EEC. The eSignature directive, for example, uses the term “generally recognised standards”.

of specific standardisation techniques outside their remit ^[230]. This leads to confusion towards the outside world.

9.4 Conclusions and recommendations

The current EU ICT standardisation policy is characterised by a diversity of ad hoc initiatives trying to encompass the ICT challenges, and is no longer fully compatible with its legal basis. Therefore, a coherent and consequent long term strategy should be built, taking into account the new and future ICT landscape. Also, educational efforts should be undertaken for explaining the system to all relevant parties affected by standardisation (industry, users).

Take a holistic approach – ICT is no longer a sectoral issue but a horizontal one, concerning the activities of many teams and directorates within the EC. The policy hence needs to include the necessary coordination between the different participants.

We recommend a coherent and consequent EU ICT standardisation policy for supporting EU policy objectives (regulatory issues, competitiveness, trade, ...) that encompasses the challenges of the ever changing ICT landscape and takes into account the differences between standardisation objectives, areas of standardisation, and types of standards, followed by a coherent and consequent implementation. For creating this coherent and consequent ICT standardisation policy, an open discussion between the national and EU policy makers, especially within the European Commission itself, will have to be initiated.

Assessment of current legal framework with a focus on simplification – A gap analysis should be made of the practices that are in place and the laws on which they are based, including an assessment of the need for incorporation of the identified practices in the legal framework, and a subsequent amendment of the relevant legal instruments, if necessary. Furthermore, the current standardisation procedures and standardisation deliverables should be assessed on their harmonisation and simplification opportunities. Too many procedures and too many types of deliverables exist in the current standardisation system, creating confusion on their applicability and legal value in the market.

We would therefore recommend to include a new work package “Legal gap analysis” in the next version of the 2006 ICT Standardisation Work Programme. Those practices that are assessed as necessary or useful should be kept and formalised in legislation, practices that are assessed as unnecessary or unwanted, should be stopped. Based on this gap analysis, the European Commission could start drafting proposals for amendments to the existing legislation. The exercise could be done based on article 9 of Council Decision 87/95 stating that every two years the Commission shall submit a progress report to the European Parliament and the Council on standardization activities in the information technology sector. This report shall refer to the implementing arrangements adopted within the Community, the results obtained, the application of those results in public procurement contracts and national technical regulations and, in particular, their practical significance for certification.

Revitalising the Council Decision 87/95 – It has been noted that whilst Council Decision 87/95 on standardisation in the field of information technology and telecommunications is still valid, major parts of it seems to be forgotten and are no longer applied. Examples of “forgotten” rules are the clauses relating to the conven-

²³⁰ New approach techniques, such as referencing of standardisation deliverables in the Official Journal, have been followed for standardisation efforts that do not fall under new approach (eSignature, eInvoicing, ...).

ing of SOGITS, the clauses on public procurement, and the clauses on synchronisation with international standardisation work.

Leaving the Council Decision as it is, without rolling out all its rules, creates legal uncertainty for all participants involved. Therefore, the European Commission should in our opinion take a firm decision on whether or not to reactivate the Council Decision. Should the Commission deem the Council Decision still to be valid and relevant, it should take the necessary actions for applying the rules laid out by the Decision. Should the Commission conversely be of the opinion that the Council Decision no longer has any value, it should take the necessary actions for its withdrawal.

In our opinion, the Decision, even in its current unmodified stage contains valuable and relevant principles (e.g. the convening of a consultation body) that should be kept. Therefore we would recommend a revitalisation of the Council Decision 87/95 by applying its relevant principles again and by creating awareness about its existence in the relevant communities. A revitalisation of the Council Decision 87/95, together with a light review of some of its clauses would give the EU policy makers a strong policy instrument for taking up the challenge of ICT standardisation in Europe.

Education – The rules and procedures entailed by the standardisation system will never lose a certain degree of complexity due to the nature of standardisation itself. Therefore, a major role should be reserved for explaining how standardisation works, what the impact of standardisation means, and how one can be involved in standardisation. Education efforts should be undertaken by the public authorities and by the standards development organisations and specification providers to ensure that standardisation does not remain the field of standardisation experts only but that the system is transparent to anybody who is affected by standardisation efforts.

This education about standardization could start with regular education (e.g. primary school, secondary school, vocational training, university students including e.g. MBA students, PhD students and post-docs, teachers and university professors), but should certainly include job training (e.g. for standards developers, implementers, corporate managers, managers of functional units, researchers, policy makers, public administration, lobbyists e.g. for an industry sector, and media people), and education for the wider public^[231].

²³¹ De Vries & Egyedi, 2007.

PART IV. MODEL FOR FUTURE EU ICT STANDARDISATION POLICY

1. Model based on general principles of standardisation

We propose a model for developing an EU ICT standardisation policy that would be more fit to respond to the challenges imposed by the changing ICT and ICT standardisation landscape. The model encompasses the issues identified in Part III of this report, with respect for the European and international standardisation principles as laid out by the Council Resolution on European standardisation of 1999 and the WTO TBT agreement.

The EU standardisation principles confirm that standardisation is a voluntary, consensus driven activity, carried out by and for the interested parties themselves, based on openness and transparency, within independent and recognised standards organisations, leading to the adoption of standards, compliance with which is voluntary. The WTO considers transparency, openness, impartiality, consensus, effectiveness, relevance and coherence as key principles that should apply to international standardisation.

The proposed model pivots around these EU and WTO standardisation principles, and is based on the following elements:

- ensuring that all interested parties can have their say in the standardisation process, from the policy and strategy level to the operational level, and from the drafting to the implementation phase (openness, transparency and consensus, carried out by the interested parties);
- ensuring that standards can be developed by the most appropriate party, provided it meets the relevant quality criteria for EU standardisation (effectiveness, relevance, independent and recognised standards organisations, impartiality);
- ensuring a synergy between European and international standardisation work (effectiveness, relevance);
- ensuring a proper implementation of developed standards, not by obliging their use, but by undertaking proper promotion and education activities (voluntary compliance); and
- ensuring the establishment of an efficient and understandable standardisation mechanism (transparency and coherence).

2. Elements of the proposed model

The current EU ICT standardisation landscape is marked by an institutional part (the formal standardisation system) and an informal part (loose set of standardisation related initiatives). The informal part is becoming more and more important and should be given the necessary attention by the EU ICT standardisation policy. We think that the best way to synchronise the new tendencies is to integrate them in the institutional part, i.e. using the standardisation system as the basis for European standardisation efforts, but adapting it to the new reality.

Therefore, we would propose to establish a levelled decision making process, to adopt an open minded and realistic approach as to the role of European standardisation in the world, to directly involve other organisations than ESOs in parts of the standardisation process, to promote the adoption of the voluntary standards by making them freely available, etc.

The proposed model would continue to preserve public oversight of critical standard setting processes, can set standard strategies for Europe, can help increase the rate of adoption of EU standards in global markets, and can also help in establishing political consensus to pave the way for the introduction of new products in a multinational region. Direct intervention in the market would be kept to a minimum to allow the EU businesses to be competitive globally.

By adopting elements of this model, we believe that the current valuable EU standardisation system – including its mechanism of co-regulation – can continue to be an efficient and proper answer to the changing market conditions described in Part III of this report.

2.1 Introduction of levelled decision making platforms

Decisions regarding ICT standardisation should be taken at three decision levels: policy, strategy, and operational. We will assume first that each level has a distinct identification (or platform) from the others.

2.1.1 Policy platform

For creating a coherent and consequent ICT standardisation policy, an open discussion between the national and EU policy makers, especially within the European Commission itself, will have to be initiated. This initiative could formally take place in a policy platform for ICT standardisation. This platform would be hosted by the European Commission and consist of European Commission officials and national representatives who could together define a long term EU ICT standardisation policy.

Participants – The policy platform is a high level platform to set major lines for the future and resolve (possible) problems at political level. It should therefore include the European Commission and the Member States only. ESOs, industry and public interest stakeholders could be asked to provide relevant input to the platform.

Tasks – The policy platform is responsible to set long term policies for Europe. Its tasks are:

- identification and differentiation of policy areas where different degrees of intervention should be exercised (for instance, legislation, regulation, public procurement, digital signatures, eHealth, etc.);
- clarification of the areas that fit entirely or partially in the public policy area, and clarification of the areas that do not fit at all and must be defined under the issues of competitiveness and market;
- setting short, medium and long term priorities in the various policy areas (it should take into account industrial policies such as the ability of the European industry to respond to the requirements, and commitments from the Member States to be active in the implementation of the chosen areas);
- identification of areas where further integration of the internal market must be pursued;
- identification of problems where the application of (European) standards in public sector orders are not followed appropriately.

2.1.2 Strategy platform

The strategy platform is a formal place where stakeholders and public authorities can dialogue on the future directions of standardisation efforts based on the strengths and interests of the stakeholders and based on the envisaged short, medium and long term policy objectives.

Another objective of this platform is to establish the necessary consensus between the players to create the

conditions to launch investments in new initiatives. Most of the times, the market alone cannot make technical evolutions due to “chicken-and-egg” situations.

Consider the following two examples. One of the successes of GSM was the agreement on frequency bands throughout Europe, and the agreement and the commitment of the operators on the yet to standardise technology. Another example refers to the Internet. In technical terms, the Internet is blocked. Standards on IPv6, IntServ, DiffServ, Mobile IP, etc. have been defined for years now but their deployment will not happen due to the lack of investments of the ISPs. One ISP will not start an investment because it cannot take advantage of it if all the other ones do not invest. All the recent evolutions of the Internet are performed by overlay networks, in order to not demand changes at the core. The strategy platform can then be a forum where concertation can be achieved and programmed to enable long step endeavours.

Participants – The strategy platform is composed of the Member States, the European Commission, ESOs, non-formal SDOs, specification providers, public stakeholders (e.g. ANEC and NORMAPME), and industrial stakeholders. The inclusion of the non-formal SDOs and the specification providers is subject to their willingness to participate and the approval from the European Commission that they follow the EU or WTO TBT standardisation principles in their procedures. The inclusion of the public and industrial stakeholders is subject to their willingness to participate and the approval of the European Commission.

Tasks – Once the major lines of activity are defined, as well as the main guidelines regarding horizontal aspects such as interoperability, user participation, etc. by the policy platform, it is up to the strategy platform to come up with requirements and conditions on how to proceed to implement the policy objectives.

The main tasks of the strategy platform could consist of:

- creating the necessary consensus between the Member States, the European Commission and other represented players for the creation of a unique vision of the solution to the problem to resolve (e.g., in terms of requirements and commitment);
- guaranteeing that the requirements due to the diversity of the European reality are turned into advantages for the products and standards and not regional handicaps. If a product or a standard is able to incorporate the requirements of a multinational region as Europe, it will stand and win at global level;
- synchronising the work with international standardisation organisations;
- setting up conditions to improve interoperability of the standards to be developed (various scenarios can be considered, ranging from an overambitious one where an open infrastructure can be created to support *all kinds* of services, up to vertical infrastructures per sector controlled by alliances or associations);
- promotion of arrangements that go beyond the framework of industrial standardisation but depend on the agreements concluded in particular fields of professional activity and contribute to the efficient exchange of information (e.g., travel agency transactions, money transactions, etc.);
- the management of the work programmes;
- proposing co-operation activities in the standardisation area with other regions of the world; and
- monitoring the implementation of standards belonging to approved policy areas, identify obstacles and propose solutions to eliminate them.

It is also a duty of the strategy platform to propose lines for the future to be approved by the policy platform. Amongst them are the following:

- preparation of work programmes and proposal of priorities; and
- preparation of reports describing the execution of the activities in the field of ICT.

It is important to note that we see this platform as having an advisory role. Decisions taken at this level should always be approved by the policy platform, the European Commission, or even in a more formal way (Council, Parliament).

In Practice – From a practical viewpoint, the policy platform and the strategy platform could be part of one organisational entity. This entity could be called a High Level Strategy Group on ICT Standardisation. The above called policy platform would be a sub-group of this High Level Strategy Group on ICT Standardisation whose participation is limited to public authorities discussing on policy issues. It would convene less frequently as the scope of their decisions is longer in time.

2.1.3 Operational Platform

The operational platform is an execution body but it has also an advisory role concerning operational issues.

Participants – The operational platform is composed of the European Commission, ESOs, non-formal SDOs, specification providers, public interest stakeholders (e.g. ANEC and NORMAPME), and industrial stakeholders. At the operational level, the presence of the Member States it is not seen as relevant. The inclusion of the non-formal SDOs, the specification providers, and the stakeholders uses the same procedure as for the strategy platform and it makes sense that the same entities are represented at both platforms.

Tasks – The operational platform receives the decisions approved at higher level. One type of decision can be the willingness to pursue the standardisation activity in some area without any attached mandate. This can be the result of a consensus on a general policy area where it was decided that the market should have the lead. The operational platform must decide which standardisation body (or a joint effort of more than one) should specify the standard. This is very much a co-ordination task of the standardisation activity.

Another type of decision is the willingness to mandate on a certain subject. The operational platform should propose the text of the mandate and suggest the target organisation (or organisations) for that mandate. The final decision to issue the mandate lies within the European Commission.

The operational platform should also take care of other operational issues. The main tasks are then:

- co-ordinate standardisation activities identified by the strategy platform that are not subject to mandates;
- propose texts and target organisations for the mandates that the European Commission is willing to perform;
- execution of the work programmes;
- detailed report describing the execution of the activities and the practical results of their implementation; and
- proposals of new areas where general policies should start.

2.2 Open minded and realistic approach towards global position of EU standards

ICT standardisation takes place in a global environment, with different players involved and different interests at stake. Not taking this reality into account and not taking efficient and coherent actions towards these players would risk European interests to become ignored and finally EU ICT standardisation to become irrelevant at a global level.

Therefore, an open minded and realistic approach towards the role of EU ICT standardisation in a global

environment should be part of the EU ICT standardisation policy. This approach should be coherent with the policy objectives and not only be based on ad hoc initiatives.

Currently, different initiatives have been undertaken for allowing a global impact of the EU standardisation efforts, such as entering into cooperation agreements on different levels and with different players, or delegating EU representatives to standardisation organisations or regions.

Still, we think that work has to be done in strengthening the role of EU ICT standardisation on a global level. Certain agreements are valuable, should remain and even get stronger. Others were performed as a symptomatic reaction and are probably better handled in a different way.

Cooperation with formal SDOs – ESOs have an important role in standardisation in Europe and have established agreements with international SDOs, which should continue and be strengthened. These are the cases of the Vienna Agreement, the Dresden agreement and the MoU in the Telecommunications Sector. There are areas of ICT where these arrangements respond quite well to the requirements of the reality.

Cooperation with non ESOs – However, for certain areas of ICT, the reality is no longer the creation of standards by experts, that will be implemented by the industry and get revised due to the feedback from their use. The Study has shown that industry prefers to drive the process and created what was called non-formal SDOs and specification providers to define the standards. The consequences of this choice were serious and two of them are relevant to this section: the starvation of expertise from the formal organisations, and the creation of standards outside of the formal system. It was described that the reaction of the formal system was to try to integrate somehow the non-formal system. In the case of ESOs, the cooperation between the formal system and the “non-formal” system was based on agreements. “Fast track” procedures were also defined within ESOs and within international SDOs. It is a complex and cumbersome solution, as the Study has demonstrated. We do not believe that it will stand for many more years. Therefore, a better way to integrate the “non-formal” system than the usage of the cooperation agreements was proposed with the platforms. It is not a solution at global level (because the institutions are European institutions), but would allow Europe to take more advantage of the “non-formal” world in a coherent way and possibly bring “action” to the region.

NSB cooperation – The role of the National Standardisation Bodies (NSBs) in these specific areas of ICT seems to be somehow emptied due to these choices of the industry to perform the standards. In future terms it is difficult to identify a clear role for NSBs in these areas: they might change dramatically and start acting based on the rules of consortia to attract the action. This seems unrealistic due to the impact on their structural organisation that works very well for other areas. Our opinion is that NSBs should focus on the areas where their work is valuable instead of aiming at covering the whole reality using the same rules and procedures.

Regional cooperation – Another level of co-operation is the co-operation between regions in the world. There are different aspects here: certain consortia act at global level and their willingness to participate in the European platforms provides already a global dimension and a certain cooperation. Another kind of co-operation is between formal organisations from other parts of the world – for instance, China, India, Korea, United States, Australia, etc. Europe has already a representative for standardisation issues in China. Such initiatives should continue and cover other regions, but it should be borne in mind that its importance might be more relevant for the formal system of standardisation and the issues that work well under its scope. Once again, as for NSBs, different problems and realities should be addressed differently. Strategic co-operation based on the identification of areas where the European industry can actively participate and gain from mutual endeavours should be one objective of the action of the representatives.

2.3 Transparent and diversified use of mandates

The use of mandates is a very valuable tool in the hands of the European Commission to exercise an active role in the standardisation process in public policy areas. Without mandates, the European Commission would not be able directly to initiate standardisation initiatives in those areas and its role would be restricted to a more persuasive, more passive, role.

Therefore, we think that the mechanism of mandates should continue to exist, although in an updated form.

- Currently, the mandating mechanism is formally restricted to New Approach standardisation activities, although, in reality mandates are also being used outside of the scope of the New Approach on an ad hoc basis (e.g. eHealth, electronic signatures, eInvoicing). We think that the model should formally allow the use of mandates outside of the scope of New Approach.
- Currently, the issuance of mandates is restricted to ESOs only. We think that the model should allow for some standardisation related activities and in some circumstances the European Commission to mandate other organisations than ESOs.

We would argue for a differentiated approach towards the use of mandates, based on the policy objectives to meet, the work to be mandated and the players to whom the mandate can be issued.

Who to classify? – The existence of the platforms defined above can help put the various problems in perspective and provide different answers to different problems.

Regarding the ICT reality, it is expected that activity in market oriented policies will gain an ever growing share of the total activity which makes the reaching of consensus at the strategy platform more relevant than the concrete issuance of mandates. For the non-regulated part of ICT, mandates should be issued with very precise objectives. It is expected that their numbers tend to be small.

This is an area that is unquestionably outside the New Approach. For each objective, the best organisation (the one which proves to have more expertise in the field) should be chosen, regardless of being an ESO or not. It is important to note that mandates are not orders given to organisations, and their acceptance by non-ESOs organisations should imply their commitment to the spirit of the legislative acts. Ex-post assessments of these initiatives would be valuable to understand the efficiency and the benefits of mandating non-ESOs organisations.

The proposed model should incorporate a classification of policy areas (New Approach, Public interest, other policy areas) and then define what level of involvement could be necessary (Studies, Recommendations, drafting of standard, etc) by which entity (ESO, non-ESO). The classification should be drawn up by the policy and strategy platform and could take into account the following differentiation as a starting point:

Type of standardisation area	New Approach	Public interest	Other policy areas
Type of mandated work			
Studies	ESOs	ESOs Other organisations	No mandating
Recommendations for standardisation work	ESOs	Other organisations	No mandating
Standardisation	ESOs	Other organisations	No mandating

2.4 Increase the voluntary adoption of European standards

2.4.1 Marketing efforts

A parallel effort to the creation of standards that aim at global level, is to support their implementation in Europe and, if relevant, in other regions of the world. Without any doubt the standards need to have technical merits and need to have caught the attention of the market as a first step. It is always easier and more successful to “sell” a good product. Throughout Part III of this report, a series of recommendations were written on this respect and are summarized here.

Looking at the past, some success stories happened but under very specific conditions: New Approach standards got market acceptance due to their legal framework. Although the New Approach standards referenced in legislation are to be adopted on a voluntary basis, the market usually chooses to implement these standards because of the presumption of conformity with the essential requirements of the law. The GSM case was already thoroughly analysed in this report and it is very much a result of very special conditions unlikely to happen again. For areas slightly co-regulated or without regulation, new approaches must be defined. However, one condition seems to be necessary: the (European) market has to accept the standard in the first place. Products following the standard will then be made and sold.

As a main measure, a European industrial policy for ICT must be defined to identify and select areas where Europe is at an advantageous position and prepare other areas where work must be done to improve them and place them at global level. The policy and strategy platforms seem to be places to discuss these issues. Means to improve them can be investment in R&D programmes, the trial of new initiatives of associating know-how (Integrated Projects, European Technological Platforms, etc.), industrial alliances on vertical issues, etc.

The identified potential global successes should be subject to promotional activities involving commercial policies and the representative for standardisation issues in other regions.

Public procurement is an area where public administrations are direct clients and can force the establishment of the market for European products and standards. Once again, consensus at the policy and strategy platforms can induce a positive drive for the market.

2.4.2 Intellectual Property Rights

The relation between Intellectual Property Rights and Standards is complex and the different players have not achieved a satisfactory framework that avoids most of the current problems. It is expected that the problem will not disappear with time, rather becoming each time more complex.

ESOs are active in clarifying the rules and procedures they follow but clearly these rules cannot solve the more serious problems when (and if) they happen. Just to name the more relevant ones: ambushes; unwillingness of an organisation (Member or not) of licensing an IPR; knowledge about essential patents; behaviour towards IPR claims after a reasonable long time when the technology is really launched under the assumptions that the IPRs were different.

The European Commission should take the initiative to launch a global study on IPR, standardisation and ICT. There are already some different proposals and studies at different stages of maturity at different regions and a global position should be pursued.

2.4.3 Free availability of standards

Certain areas of ICT involve an interested community that can add value to the standardisation process without being formally involved in it. This is not seen in other areas of ICT and surely not in other standardisation areas (construction, transportation, security, etc.).

In particular, the research community has a past history of bringing standards to the global discussion and of improving them in ways that are not affordable to any enterprise (examples in the sphere of Internet are quite relevant). This is probably an excellent way to provide visibility to a standard, the cost of which would have to be compared to the income provided by the collection of fees from the NSBs or other SDOs.

Therefore, the proposed model would allow free availability of standards developed by SDOs operating in Europe in the ICT area. It is clear that launching this model would have an impact on the business model of SDOs whose income is dependent on the sale of standards. Therefore, a discussion should be launched with all relevant players, possibly in the policy and strategy platform to find an appropriate business model including new forms of income.

PART V. RECOMMENDATIONS

1. List of Recommendations

Recommendation 1

The European Commission, together with the Member States, should establish an innovative and consistent ICT standardisation policy that should subsequently be implemented in a coherent and co-ordinated manner. The new ICT standardisation policy should pay attention to the policy context in which standardisation takes place. Policy should, therefore, differentiate between:

- standardisation efforts in support of New Approach legislation (e.g. At&T directive, EMC directive);
- standardisation efforts in support of non-New Approach legislation (e.g. eSignature directive, Communications Framework directive);
- standardisation efforts in support of EU policies in the public interest domain (e.g. eHealth policy, eAccessibility);
- standardisation efforts outside of the legislative or public interest policy area (e.g. competitiveness, innovation).

Depending on the policy areas, different actions for the EU ICT standardisation policy should be defined.

The policy should be fully in line with the standardisation principles laid out by the Council Resolution (1999), the WTO TBT agreement (1995) and the Global Standards Collaboration (GSC) open standards Resolution (2005).

Recommendation 2

The European Commission should reinforce dialogue between the European Council and the European Parliament about ICT standardisation policy and the subsequent use of ICT standards in EU policies.

Recommendation 3

The European Commission should foster a high level strategy dialogue between Member States, technology providers, technology users, public interest organisations, SDOs and specification providers. Dialogue should focus on the effective implementation of ICT standards, identify policy priorities for standardisation, advise on international relations, and potential co-operation, with a view to making effective use of all available resources and providing policy makers with the required standards. The organisational implementation of this dialogue should allow an institutional dialogue between Member States and the European Commission on matters within their specific responsibilities.

Recommendation 4

The high level strategy dialogue should be complemented by a platform permitting an organisational dialogue between SDOs and specification providers, technology users and providers, and public interest organisations. The platform should decide on practical matters and co-operation issues in view of implementing the standardisation priorities and possible accompanying measures.

Recommendation 5

To respond rapidly to standardisation needs set by i2010 and the innovation policy, the new ICT standardisation policy of the European Commission should build upon the synergies provided by a better integration of European Standardisation Organisations and relevant consortia and fora activities in the domain. A further integration of fora and consortia by including deliverables within the EU standards catalogue or by direct mandating of fora and consortia, should, however, take into account the specific requirements set by Public Authorities for standards to be used in association with EU legal and policy acts. A differentiation of criteria for this integration and the use of the deliverables should be carried out in accordance with the differentiation suggested in Recommendation 1.

Recommendation 6

The European Commission should respond to the growing “user” impact on the effective implementation of standards. In its response, the European Commission should differentiate between:

- industrial users of ICT solutions; and
- other indirect users of ICT solutions and standards such as consumers and SMEs.

The concept of “inclusive standardisation process”, in particular, is one of the European standardisation principles, that could benefit from further clarification in accordance with the specific needs of each category.

Recommendation 7

The European Commission should include, within the new ICT standardisation policy, a clear vision on the desired impact of the EU ICT standardisation efforts on a global level and focus on the protection of EU cultural interests in international standardisation work and on the promotion of European standards at an international level for reasons of competitiveness.

Recommendation 8

In order to promote the implementation of European standards and in order to increase the interoperability of European applications and services, the European Commission, the Member States and all public administrations should refer to European standards in the procurement of ICT products, services and applications. The reference to European standards needs to be re-enforced in general through European public procurement legislation.

Recommendation 9

The European Commission should re-enforce the relationship between R&D on the one hand and standardisation on the other; the results of the COPRAS and INTEREST projects need to be further analysed and integrated into the new ICT standardisation policy.

Recommendation 10

The European Commission should include, in the new ICT standardisation policy, tools that promote the use and implementation of European standards. It is recommended to The following measures could be considered:

- a coherent and harmonised (free) availability policy for standards/specifications established by all standards/specification producing organisations within the European standardisation system;
- a thorough study on the relationship between the intellectual property rights (IPRs) and ICT standards to be initiated by the European Commission, the purpose of which should be to launch a global discussion with other global regions.
- a coherent, transparent accessibility and participation policy for all standards/specification providing organisations within the European standardisation system;
- an evaluation on the effect of partition of systems via the standardisation definition in order to make them more accessible to SMEs;
- specific measures that allow increasing trust and stability prior to the implementation of standards such as: conformance testing, certification aspects, interoperability testing, mandatory implementation prior to the final acceptance of the standards (either simple coding implementation or reference implementation), etc.

2. Rationale and implementation of the recommendations

Recommendation 1

The European Commission, together with the Member States, should establish an innovative and consistent ICT standardisation policy that should subsequently be implemented in a coherent and co-ordinated manner. The new ICT standardisation policy should pay attention to the policy context in which standardisation takes place. Policy should, therefore, differentiate between:

- standardisation efforts in support of New Approach legislation (e.g. At&T directive, EMC directive);
- standardisation efforts in support of non-New Approach legislation (e.g. eSignature directive, Communications Framework directive);
- standardisation efforts in support of EU policies in the public interest domain (e.g. eHealth policy, eAccessibility);
- standardisation efforts outside of the legislative or public interest policy area (e.g. competitiveness, innovation).

Depending on the policy areas, different actions for the EU ICT standardisation policy should be defined.

The policy should be fully in line with the standardisation principles laid out by the Council Resolution (1999), the WTO TBT agreement (1995) and the Global Standards Collaboration (GSC) open standards Resolution (2005).

Why: The current ICT standardisation policy is characterised by symptomatic responses to evolving challenges, and has lost its holistic approach. Furthermore, EU decision makers, within the European Commission, do not always look in the same direction when defining their vision on ICT standardisation. Hence it is difficult to speak of one clearly delimited EU ICT standardisation policy. The characteristics of the standardisation procedures and the involvement of the European Commission varies depending on the classification of a certain policy (New Approach, public interest, or addressing competitiveness). A clear definition of these aspects will help define the rules for all.

How: In order to create a coherent and efficient ICT standardisation policy, an open discussion between

firstly, the national and EU policy makers and secondly, within the European Commission itself, needs to be initiated. This open discussion between Member States and EU decision makers could take place formally in the policy platform for ICT standardisation outlined in the proposed model (and below). The open discussion within the Commission could be based on the conclusions of the former. European Commission participation in a certain policy area should depend on area classified in accordance with the above mentioned metrics.

Recommendation 2

The European Commission should reinforce dialogue between the European Council and the European Parliament about ICT standardisation policy and the subsequent use of ICT standards in EU policies.

Why: Current discussion on future ICT standardisation efforts remains restricted to a limited group of standardisation experts and stakeholders, who are directly involved in standards setting activities. The ICT standardisation discussion should now be broadened to a higher political level. The challenges that have been identified and the actions proposed for adapting the current EU ICT standardisation policy should be encapsulated in the broader policy needs of the EU. They therefore need to be put on the agenda of those EU policy makers who are currently not active in the field of standardisation.

How: The European Commission could submit a progress report (including a work programme) to the European Parliament and the Council on standardization activities in the ICT sector. This information exercise could for example be done based on article 9 of Council Decision 87/95, requiring the European Commission to report to the Parliament and the Council every two years on, amongst others, the implementing arrangements adopted within the Community, the results obtained, and the application of those results in public procurement contracts.

Recommendation 3

The European Commission should foster a high level strategy dialogue between Member States, technology providers, technology users, public interest organisations, SDOs and specification providers. Dialogue should focus on the effective implementation of ICT standards, identify policy priorities for standardisation, advise on international relations, and potential co-operation, with a view to making effective use of all available resources and providing policy makers with the required standards. The organisational implementation of this dialogue should allow an institutional dialogue between Member States and the European Commission on matters within their specific responsibilities.

Why: The specific characteristics of ICT call for the establishment of dialogue platforms amongst the participants. Currently, the only committee on standardisation that is convened is the 98/34 committee. It has a wide range of concerns, covers issues related to the New Approach legislation, and does not fulfil the needs of the ICT sector (the incorporation of relevant players for setting up consensus, etc.). Therefore, a platform with interested stakeholders is seen as a valuable tool for setting strategies and achieving consensus in a multinational region such as Europe. Nevertheless, political tasks – such as the definition of high level policies and their prioritisation – should remain a task for the Member States, with help from the European Commission. This calls for a more restricted platform that should convene less frequently. We recommend it to be a sub-committee of the first one. This subcommittee, named a policy platform, is therefore restricted to the European Commission and the Member States. A general description of the tasks of the committees is included in Part IV (Model) of the Report.

How: The “spirit” of the Council Decision 87/95 remains very relevant, but in practical terms is rarely implemented. Rather than simply revitalising the Decision, some minor changes can be made to upgrade it to the current reality. Some clauses must be assessed vis-à-vis their long-term relevance and some amendments should be adopted to incorporate the platforms mentioned in this Recommendation. This work could be performed as a work package to be included in the next version of the ICT standardisation work programme. Meanwhile, it is probably worth mentioning that the SOGITS committee can be invited to convene again by simple invitation of the European Commission, and participants other than Member States’ representatives can be invited such as experts or advisers. Putting this recommendation in practice using such a technicality should only be considered as a transient mechanism towards a more systematic, cleaner legal framework.

Recommendation 4

The high level strategy dialogue should be complemented by a platform permitting an organisational dialogue between SDOs and specification providers, technology users and providers, and public interest organisations. The platform should decide on practical matters and co-operation issues in view of implementing the standardisation priorities and possible accompanying measures.

Why: In the past, Europe has had (indeed still is having) a positive impact on co-operation in the field of standardisation that needs to be valued and strengthened. For Europe to have a real impact, strategic decisions taken at higher level should be followed up at operational level, in an institutional way. Activities such as the monitoring and control of the decisions need a platform more specific than the high level strategic one. Part IV of the Report describes the main tasks assigned to this operational platform.

How: The legal framework for the operational platform should come by updating Council Decision 87/95. As this may take some time, one possible interim mechanism could be to make more use of the current ICTSB. Almost all players proposed for the operational platform have currently a seat on ICTSB.

Recommendation 5

To respond rapidly to standardisation needs set by i2010 and the innovation policy, the new ICT standardisation policy of the European Commission should build upon the synergies provided by a better integration of European Standardisation Organisations and relevant consortia and fora activities in the domain. A further integration of fora and consortia by including deliverables within the EU standards catalogue or by direct mandating of fora and consortia, should, however, take into account the specific requirements set by Public Authorities for standards to be used in association with EU legal and policy acts. A differentiation of criteria for this integration and the use of the deliverables should be carried out in accordance with the differentiation suggested in Recommendation 1.

Why: Relevant ICT work is being done by non-formal SDOs and specification providers outside of the formal standardisation system. This Study shows that to ignore such work at a policy level and to leave it to the market to regulate is not an optimal approach from the EU’s perspective. Informal ad hoc contacts between the European Commission already take place. It is time they become part of the EU ICT standardisation policy. The incorporation of the non-formal system raises some problems that must be solved (their procedures, the degree of incorporation of their deliverables, the conditions for mandating, etc.). Some of these were thoroughly analysed in this Study. A complete clarification must be done in order to integrate their efforts speedily into European ICT standardisation policy.

How: The inclusion of consortia & fora must always be based on their willingness to participate. Their in-

volvement and participation should always go via the strategy platform, in order to ensure their alignment with the strategic lines of Europe. Responsibility for defining the requirements needed to participate at this level should be left to the European Commission. These requirements should be based on the set of internationally accepted standardisation principles (Council Resolution, WTO TBT and GSC). The Commission should define and propose to Parliament the guidelines for the changes needed on the legal framework to incorporate the work of consortia & fora. It is recommended that their work will always be performed outside the New Approach initiatives, which minimizes legislative change. The operational platform should advise the European Commission on the assignment of tasks (including mandates) to consortia and fora.

Recommendation 6

The European Commission should respond to the growing “user” impact on the effective implementation of standards. In its response, the European Commission should differentiate between:

- industrial users of ICT solutions; and
- other indirect users of ICT solutions and standards such as consumers and SMEs.

The concept of “inclusive standardisation process”, in particular, is one of the European standardisation principles, that could benefit from further clarification in accordance with the specific needs of each category.

Why: A large gap exists between, on the one hand, the inclusive aims of European standardisation policy and, on the other hand, the low level of actual user participation. SMEs and consumers are under-represented in standardisation activities, whereas industrial ICT users’ efforts are limited to sector specific standardisation involvement.

To bridge this gap, attempts have been made to mould practice to standardisation principles. These attempts have largely failed. Where user involvement is necessary, a more substantive and active inclusive approach is needed. From the European point of view, a focus on strengthening indirect user participation at the European level would seem most effective.

But even where favourable conditions for user participation exist, a lack of users in the standardisation process remains. This is caused to a large degree by a lack of awareness in the importance and benefits of standards. Therefore, the overall level of awareness, knowledge and expertise needs to be raised.

How: Examples of policies that strengthen the participation of political minorities in European standards committee have been outlined in the Report. We would, also, recommend that larger organisations organise themselves on a cross-industry level for representing their interests as ICT users in the standardisation area. As to awareness creation, the European body of expertise needs to be strengthened and disseminated in a structural way by introducing standardisation in regular and advanced education.

On a policy level, the EU ICT standardisation policy will need to be much more differentiated than is currently the case. Depending on the context in which standardisation takes place (see recommendation 1), user involvement may be deemed more necessary than in other areas. ICT standardisation policy measures must also distinguish between direct and indirect users of standards, and between implementation and adoption of standard-compliant products, respectively. It must take account of the differences between categories of users (e.g. SMEs and consumers who may have different interests with respect to the importance of design), and standards development and implementation (e.g. with respect to the needs of ICT-SMEs). Arguably, effective policy on standards implementation may ultimately be more decisive for the European information society than involving users in their development.

Recommendation 7

The European Commission should include, within the new ICT standardisation policy, a clear vision on the desired impact of the EU ICT standardisation efforts on a global level and focus on the protection of EU cultural interests in international standardisation work and on the promotion of European standards at an international level for reasons of competitiveness.

Why: ICT is already a global activity, and the justification and market importance of regional products is hard. Failure to adapt to the global environment by failing to participate actively in global standardisation activities, may result in European standardisation work, (including its safeguards), becoming both sidelined and irrelevant. The strategy to participate in global standardisation activities should stress the regional character of standardisation when it comes to safeguarding typical European values. The complex multinational structure of the European region should be seen as an advantage rather than a hindrance. Having gone through a multi-lateral process at a European level these standards can be all the more easily integrated on a global scale. After all, European standards of excellence that can be easily deployed globally will provide European industry with a head start and a clear competitive edge.

How: A global impact strategy should be developed by the EU and national policymakers, together with ESOs and relevant industry and public interest stakeholders. This strategy should include a methodology for classifying standardisation activities according to their regional and global impact. The classification should identify, firstly, those international standardisation activities (performed by international standardisation bodies but also by consortia or fora) that do not fully take account of European regional interests (culture, economy) and secondly all EU standardisation activities that could benefit from global acceptance. The criteria to be used for the classification should be carefully chosen (global impact criteria such as uniqueness, interoperability, or advantage for EU industry; regional impact criteria such as data protection, consumer protection issues). Only those standardisation activities with a high score, (for example efforts for influencing the international standardisation activity or for upgrading a European standard to a global level) should be considered.

Recommendation 8

In order to promote the implementation of European standards and in order to increase the interoperability of European applications and services, the European Commission, the Member States and all public administrations should refer to European standards in the procurement of ICT products, services and applications. The reference to European standards needs to be re-enforced in general through European public procurement legislation.

Why: Public administrations are important market players when buying ICT related products and services. If public administrations were to refer to European standards in their public procurement procedures, a market uptake of European standards could certainly be expected.

European public procurement legislation obliges public administrations to refer to European standards, unless they can explain that other standards are more relevant for a specific circumstance (Council Decision 87/95, public procurement directives). In reality, however, it looks as if many Member States have forgotten to apply this rule. They often refer to standards developed outside of the EU standardisation system, although an EU alternative standard could have been followed. Furthermore, as to the use of European standards by European institutions, public procurement procedures would not always seem to refer to European standards either.

How: Public authorities should be reminded of the legal rules and their implications on the use of standards

in the public procurement processes. This reminder could be carried out through official communications from the European Commission to the national authorities, but also internally on an EU administrative level. Furthermore, information workshops and publications should be initiated on the use of standards in public procurement procedures. It would, however, be important to organise a consultation of public authorities that considers why it is that public authorities do not refer to European standards in tendering documents (lack of knowledge about existence of relevant European standard?, deliberate choice to use other standard?). This consultation could be launched as a new Work Package in the next version of the Standardisation Action Plan.

Recommendation 9

The European Commission should re-enforce the relationship between R&D on the one hand and standardisation on the other; the results of the COPRAS and INTEREST projects need to be further analysed and integrated into the new ICT standardisation policy.

Why: R&D projects that are being sponsored by European money, are not delivering the kind of benefits European industry needs – the kind of benefits that could help shape European standards on new markets. Moreover, in cases where European R&D projects do lead to standards, the knowledge gain seldom finds its way onto (European) standards bodies. It is often fed, without overt recognition, into the committees of non-European standards bodies. Another, closely related, problem has recently emerged, which in first instance concerns the ESOs, but will soon impact upon the whole of the EU. That is, acquiring the necessary technical expertise for European standardization. Already sparse, the current lack of technical experts will, in the near future, become an even more serious problem as those technical engineers, who are now shouldering most of the standardisation work begin to retire. In areas where there is a need for standardisation, it is a waste of resources not to use the results of EU research for standardisation purposes.

How: As a recommendation for closing the gap between R&D activities and standardisation work, we would support the recommendations made by the COPRAS (COoperation Platform for Research And Standards) project. COPRAS proposes early contacts between the standardisation groups and the R&D projects. Furthermore, it suggests that some dedicated support be integrated at the end of projects, through separately funded calls for tender, with “standards support” as a specific set of calls for tender. It further concludes that additional ways of identifying requirements from standards organisations to IST research at an early point in time, could greatly improve the standardisation potential of research output.

Further, in a bid to improve the relationship between Research and Standardisation in Europe and standardisation, we recommend that the guidelines produced by COPRAS and INTEREST (INTEgrated REsearch and STandardisation) are used. These guidelines are the “Standardization guidelines for IST research projects interfacing with ICT standards organizations” and the INTEREST manuals for Integrating Research and Standardisation. The European Commission should enable (horizontal) support actions building upon the achievements of the two projects. EU pilot projects should be instigated and supported that implement and evaluate these guidelines in standards bodies and research organisations.

Recommendation 10

The European Commission should include, in the new ICT standardisation policy, tools that promote the use and implementation of European standards. It is recommended to The following measures could be considered:

- a coherent and harmonised (free) availability policy for standards/specifications established by all standards/specification producing organisations within the European standardisation system;
- a thorough study on the relationship between the intellectual property rights (IPRs) and ICT standards to be initiated by the European Commission, the purpose of which should be to launch a global discussion with other global regions.
- a coherent, transparent accessibility and participation policy for all standards/specification providing organisations within the European standardisation system;
- an evaluation on the effect of partition of systems via the standardisation definition in order to make them more accessible to SMEs;
- specific measures that allow increasing trust and stability prior to the implementation of standards such as: conformance testing, certification aspects, interoperability testing, mandatory implementation prior to the final acceptance of the standards (either simple coding implementation or reference implementation), etc.

Why: The market uptake of standards and the subsequent construction of products has never been so complex. Strong user, operator, ISPs investments in the ICT sector are hindering the swift deployment of new standards. This is not a problem restricted to Europe. However, we are of the view that certain actions can be taken in order to enlarge the visibility of European standards and make the European standardisation system more competitive. This Study has identified a number of proposed actions. SMEs must also be taken into consideration, when defining standards, given that they form the bulk of the European economy. A policy that has proved successful in the telecommunications sector.

How: The practical suggestions of this recommendation are indeed diverse. They have, however, been identified as key to future EU ICT standardisation policy. By way of example, studies need to be commissioned in order to investigate new business models for national standardisation bodies, should there be a case for making the delivery of standards free. Other studies should consider the link between IPR and standardisation. Discussion should be launched by the European Commission on different levels and with different participants in a bid to stimulate the debate on how to promote the use and implementation of European standards.

List of Annexes

ANNEX A: Bibliography

ANNEX B: Field Expert Reports

ANNEX C: Responses to Questionnaires

ANNEX D: Working Group Reports

ANNEX E: Workshop Minutes

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