A NEW ROLE FOR EUROPEAN ICT STANDARDISATION

Abstract: This paper identifies the ICT standards requirements of the major European stakeholders, the current problems with European ICT Standardisation, and the challenges that any European ICT Policy must meet. It proposes new aims for a European ICT standards policy and a series of mechanisms to achieve these more effectively. These include a new structure for European standardisation which would go some way to meeting these challenges and result in a more favourable environment for stakeholders to get the standards needed to promote the competitiveness of European products and services.

1. WHAT DO WE NEED TO STANDARDIZE?

ICT in the context of this paper is taken to mean the convergence of IT and telecommunications to provide advanced services and networks. The primary focus of the European ICT stakeholders at present is to develop the Next Generation Network (NGN). This will provide multimedia, video, and data services to customers and completely replace the existing PSTN and ISDN networks, providing equivalent but higher quality services more cost effectively. 100s of billions of Euros will be spent over the next 10 years on developing these networks and launching these services in Europe and ultimately in all countries worldwide. It will be a major standardisation effort involving service providers, equipment vendors, regulators and users, and will touch on all our lives.

An overview of the technology domains making up the NGN (based on the BT 21st Century Network) is shown in Figure 1. It can be seen that the network components (home, access, and core networks) as shown in the lower left of the diagram, are a relatively small part of the whole system. IT resources (processing and storage) are needed as well as a service execution and service delivery environment and a way of managing both the network and the enterprise (OSS). Many technology disciplines are needed and standardisation plays a large part in the ability to deploy them effectively.

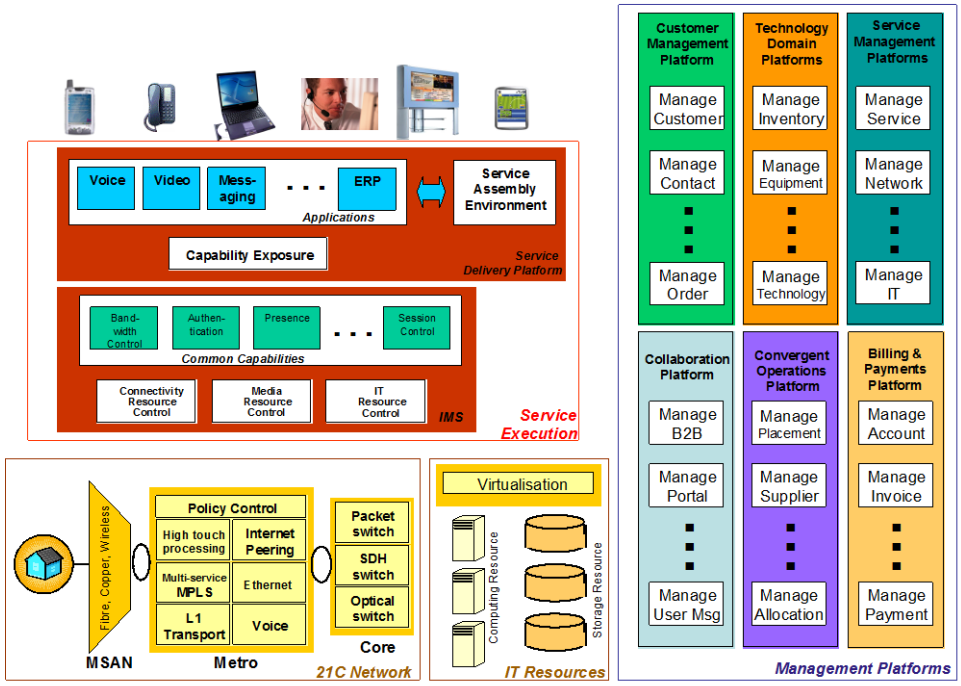

Figure 1 –Top-level Architecture of the NGN

The NGN is based on the following core concepts:

- An IP-based core network for *all* services. This could use an enhanced form of Diffserv or Multi-Protocol Label Switching (MPLS) to provide an acceptable level of QoS for real-time services.
- SIP as the protocol of choice for establishment of session-based services (VoIP, multimedia, etc.), including presence management.
- A core architecture based on the 3GPP IMS (IP Multimedia Subsystem), with extensions for access via Wi-Fi, GPRS, DSL, Ethernet, etc. This could mean that there will be little distinction between fixed and mobile networks within 5 years.
- Evolution to use IPv6. This will be essential for the enhanced addressing, autoconfiguration, and security features, and a mandatory feature of the 3GPP transport architecture.
- A residential access network converging on a DSL-based gateway – in BT's 21CN this is the Multi-Service Access Node (MSAN).
- Open APIs that will allow third party application providers to deliver services over the NGN.
- A common intelligence layer controlling all services, including real-time services currently provided by the PSTN/ISDN.
- A standards-based Home Gateway providing seamless access from wide area networks to home networking services.

- Operational Support Systems (OSS) based on a common set of components for all services (not stovepipes) and using directories, middleware, and B2B Gateway technology to provide communication between these services.

Recent technology developments that are important to the above include RFID, GRID and IPTV.

All of the above areas fall into the scope of 'ICT' standards, and so the environment in which ICT standards are developed, and the mechanisms through which they are developed, will be critical to the success of European industry and to the future competitiveness of European products and services on a very wide scale. Therefore, any European ICT standards policy must support the development of the NGN in the most effective way possible. It must allow all stakeholders, including service providers, equipment vendors, regulators and users to come together to agree the standards necessary to meet the full set of requirements. The standards must also be agreed in a timescale that meets the needs of these stakeholders (a very difficult task!).

2. SO WHAT ARE THE PROBLEMS WITH STANDARDISATION?

Why can't we have all this tomorrow and rely on the traditional standards processes for the standards we need to implement the NGN? There problems are described in the following sections.

Insufficient representation from Stakeholders

Service Providers used to drive the formal standards process in the telecommunications area. Due to overcapacity in the marketplace and the subsequent economic downturn, the service providers have had to reduce staffing levels drastically and (with some exceptions) have withdrawn from the standards process. This has resulted in a vicious circle where equipment vendors have to second guess what the operators need, leading to bottom-up solutions that don't interwork successfully or meet operator's needs. An example of this is Diffserv, which works reasonably well within a corporate or enterprise network. However, because there are no standardized classes of services between operators, it does not work for traffic sent between operator domains. An even more problematic example is fault management—a situation in which the IETF rarely considers operator requirements.

The IETF has been the driving force for the standardisation of new IP-based networks, which are providing the basis for telecom NGNs. Unfortunately, the IETF is working to a different business model and therefore providing standards that do not meet the needs of the telecom operators. Because vendors dominate the IETF, they have the ability to develop any "standard" they desire through "rough consensus and running code" (a process that requires demonstration of interoperable running code from at least two different vendors). This is covered in more detail later.

There are there so many Fora and Consortia these days – it's hard to keep track!

Many fora and consortia work at different levels in numerous overlapping technology areas relevant to ICT and networks. Over 500 are listed in web-based catalogues of fora and consortia such as ETSI's FORAwatch http://www.etsi.org/forawatch/, and, at one time (before the collapse of the dot com bubble), new fora and consortia were being created at the rate of at least one a week. It is impossible for service providers to keep track of all of these, and it is not clear to a service provider (or even to an equipment vendor) which group to work with for the standards they need. Vendors often create new fora to obtain a significant influence in the marketplace and to ensure that any resulting technical standards are based on their own product specifications.

The IPR Morass

One of the most important things to do when creating a new standards body or forum is to get the IPR policy right. This can make the difference between a smooth running and productive forum and one that can't and doesn't function effectively. It has been suggested that traditional standards bodies no longer work due to a complex mass of claims and counterclaims for IPR that are considered essential to a standard's implementation. These claims can delay implementation of a standard by up to four years, putting the future of traditional standards bodies at stake. In the future, only SDOs with successful IPR policies will survive.

The two major flavours of IPR policy are Royalty Free (RF) and Fair, Reasonable, and Non-Discriminatory (FRAND). FRAND (sometimes known as RAND) is the traditional model for IPR that has worked well for many years. Under this model, a "timely" declaration of any IPR thought to be essential to a standard under development must be made so that potential users can consider likely licensing royalties. Once the standard has been published, licenses must be issued fairly to all applicants, and the IPR holder cannot refuse to license the IPR to certain companies (non-discriminatory). If, during the standards development process, these terms are considered too onerous, there is an opportunity to specify alternative (possibly IPR-free, but less effective) technologies in the standard instead. However, standards bodies using the FRAND model have been accused of allowing IPR holders to withhold declarations until a standard is agreed upon, allowing the holders to make a "late" declaration so that unexpected royalties have to be paid (ambushing). In practice, the operation of a FRAND IPR policy is fraught with pitfalls because it depends on what is considered "fair and reasonable," whether declaration is necessary for all IPR or only that considered "essential" (without a clear definition of *essential*), and whether penalties are applied for non-declaration or for non-timely declaration.

For these reasons, fora and consortia are tending to move towards an RF model. In the pure RF model, any IPR essential to the use of a standard must be licensable without payment. Alternatively, any IPR thought to be essential to a standard under development must be declared within a specified time (e.g.,

three months). Any essential IPR that is not declared within the specified time becomes available RF to users of the resulting standards without payment. The W3C and IETF have recently made moves toward an RF policy, and fora such as OSGi and Liberty Alliance were expressly created with this IPR policy in the first place. Sometimes exceptions are allowed. For example, W3C allows exceptions to its RF policy if a significant license holder has IPR that would otherwise constitute a roadblock to further development of a standard. This points to a major failing of the RF model — companies that have significant IPR in a standard under development will simply not join or will withdraw from membership of that body, often resulting in the establishment of a de facto or proprietary standard instead of a more open standard.

3. HOW CAN WE DEVELOP THE STANDARDS NEEDED TO BUILD THE NGN?

Issues discussed in this section include the role of fora and consortia, the role of national, European and global standardisation, and leads on to the next section which describes how European ICT policy should address coordination of standards bodies and fora and promote legislation to solve the IPR problem.

Where should we develop Standards for the NGN?

It is often thought that the 'Internet' was standardised by a single body: the Internet Engineering Task Force (IETF). However, in practice the Internet relies on many different standards to provide the access networks, the terminal equipment and the servers required to use and operate it. The NGN has a much wider scope than the Internet and will require standards based on the work of an even greater number of fora and consortia. Standards bodies and fora making a significant contribution to the standardisation of the NGN include:

- 3GPP – for mobility architecture
- ATIS – for US vendor and operator input to NGN
- CEN – for eBusiness and eMarketplace standards.
- CENELEC – for Home Networking and Cable TV standards
- DSL Forum – for remote configuration of terminals
- ETSI (TISPAN) – to extend the 3GPP IMS to provide fixed and broadband services
- IEEE802 – for WiFi and WiMAX
- IETF – for IPv6, SIP extensions and MPLS
- ITU – for architecture, access and transport standards
- Liberty Alliance – for single (secure) sign-on
- MEF – for Gigabit Ethernet
- MFA – for MPLS
- MSF – for verification and testing of NGN components
- OASIS – for ebXML
- OMA – for (fixed and) mobile applications, DRM

- Parlay – for open APIs for services (Open Services Architecture)
- TMF – for management (OSS) standards
- W3C – for privacy and web services

It can be seen that, although formal standards bodies are included in the above list, that are also many fora and consortia, which have been set up to standardise a specific component or aspect (e.g. OSS, security or privacy) of the NGN. The question arises: would all these fora and consortia have been set up in the first place if the European or global standardisation system had been effective enough to meet the needs of the stakeholders? Unfortunately the answer is yes, and there will be a continuing need to for fora and consortia, so this issue is dealt with first below.

Is there a role for Fora and Consortia?

The standards lifecycle (or food chain) is shown in Figure 2 [4]. This shows the definition of requirements for standards through to the specification of the architecture and systems, to the development of the protocols, and finally to the interoperability testing and certification. In parallel with these, run the putting in place of the regulatory framework and the marketing and promotion of the technology and resulting standards. This is applied to the NGN in Figure 2. It can be seen that there are many bodies involved and although there are overlaps between many of these bodies, there are too many functions to be carried out effectively in a single body. Carrying out the functions in different bodies can be more flexible and efficient, as the key players needed to participate in the work may be different at each stage.

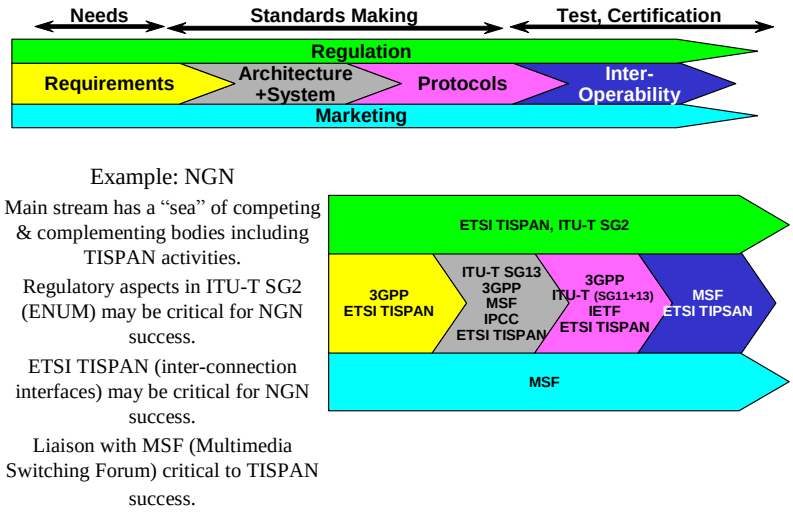

Figure 2 – Standards Life Cycle or Food Chain

Fora and consortia are created for many different reasons at different places in the above lifecycle:

- to promote a new technology (e.g., the Metro Ethernet Forum—MEF)
- to promote interoperability between standards (e.g., the Multiservice Switching Forum—MSF)
- to promote service provider requirements (e.g., FS-VDSL)
- because the formal standards bodies have refused to pick up the issues (e.g. DSL Forum)

It must be accepted that, despite their increasing number, fora and consortia have a valid place in the standards development lifecycle and will be around for many years to come. They often catalyze the development of technologies and specifications that are essential to the next generation of systems, and should therefore be supported provided they have the buy-in of the major players in their field. There will always be a need for fora and consortia to create consensus on the way forward in the standardisation of new interfaces and protocols for new technologies.

Fora and consortia act mainly (but not exclusively) at a global level. European stakeholders must always be free to set up and participate in these consortia, as their participation in industry leading consortia will benefit European competitiveness.

Although it is not possible to prevent the creation of fora and consortia, it is desirable to select a smaller number of fora to develop the standards for the major components of the NGN. For example, in the OSS area, the TMF acts as the focus for the generation of OSS frameworks and components, although it also relies on contributions from bodies such as OSS-J. However, fora and consortia that are not 'selected' may continue to operate, as they may feel they still have a job to do and a valid role to play as defined by their members. They will therefore continue to produce specifications that may compete with those from the selected fora.

Stakeholders therefore need to encourage fora to close down when they have finished their work, or merge with those selected. A successful example of this can be seen in "Layer 2" standards where the MPLS Forum, the Frame Relay Forum and the ATM Forum merged to form the MFA (MPLS and Frame Relay Alliance). Another example was the creation of the Open Mobile Alliance (OMA) in 2002 from the merger of seven smaller fora (including WAP Forum and LIF). After an initial hiatus, this merging led to much more efficient and effective standards development.

Promoting forum specifications to formal standards

Once a consortium specification is established in a particular market, it makes sense to try to globalize it so that it is applicable to equipment anywhere in the world. Standards globalization reduces the costs for service providers (provided regulatory or cultural constraints don't mean they can't use it), because it enables them to buy equipment from any vendor. It also makes sense for vendors, as they can then potentially sell their equipment to all operators. In addition, specifications from fora are often not recognised by regulators, whereas formal standards are. Therefore, it makes sense to try to fast track

fora specifications through formal standards bodies which are more open, neutral, transparent, and permanent and will be there to maintain the standard once created.

Examples of successful processes include:

- European DVB agreement with ETSI
- Fast Track and PAS procedures in ISO/IEC JTC1
- Focus Group (A.7) procedure in ITU-T

There may also be advantages of combining the working methods of the fora (better governance, participation, speed, consensus between real actors, etc.) with the quality and permanence of the formal bodies (experience, public enquiry process, better ability to maintain, etc.).

Should ICT Standardisation be National, Regional or Global?

Another difference since the rise of the Internet is the increasingly important contribution of regional standardisation. The most important regional bodies for ICT Standardisation are:

- ATIS (Alliance for Telecoms Industry Solutions), based in the Washington and providing an umbrella organisation for ANSI and ANSI-accredited bodies such as IEEE. ATIS recently restructured and rationalised its committees and operates a Focus Group on NGN which has made a major input into ITU.
- ETSI (European Telecommunications Standards Institute) – one of the three ESOs and a founder member of 3GPP (3rd Generation Partnership Project). ETSI is the home of the TISPAN project which is extending the 3GPP architecture to fixed networks. It is also making a major input into ITU.
- CJK (China, Japan, Korea) – An emerging grouping for the Far East which will become increasingly influential due to growth rates in these countries (especially China) and their rapid promotion and use of advanced services. These countries are driving the next generation of telecoms services, especially in the areas of mobile and broadband services.

However, notwithstanding the importance of these regional bodies, most stakeholders wants global standards for the NGN. Industry wants global standards because:

a) Service providers such as BT have global networks and want to deploy their services in any country in the world, without incurring the cost of creating variants for each.
b) For equipment vendors, regional markets are also too small. Vendors want to produce equipment that can be sold and used in any country in the world, as development cycles are long and cost of R&D for new products is high. The days when vendors could afford to produce different variants of the same equipment to cater for regional and local markets have long gone.

Globally, the most important body for the NGN is the ITU (International Telecommunications Union), although ISO and IEC play specific roles in areas such as web services and messaging. All the regional

bodies described above, and many fora and consortia, contribute to the ITU so that global and not regional standards are produced, which guarantees that equipment and services based on these can be used anywhere.

Is there a role for National ICT Standardisation?

With the completion of the European Internal Market and the putting in place of a harmonised regulatory environment, there should be no role for NSBs in developing ICT standards. NSBs should instead:

1. Disseminate standards information within their countries. This does not mean that NSBs should be allowed to charge for standards (standards should be available free on web sites) but that they should concentrate on adding value through, for example, proving translations or guides on the use of standards.
2. Facilitate the participation of the right experts in standards bodies at European and global level. SMEs and users, for example, often cannot afford to travel to European and International standards meetings and the NSBs can facilitate their input through either direct funding or holding pre-meetings to get national views.

The philosophy of the US standardisation system is based on individual (or individual company) participation in standards bodies and fora rather than participation via a NSB. This is the most effective way of getting standards developed as it ensures that the right experts are participating in and developing the standards. There is *no* role for NSB participation in ICT Standards, either at European or global level, and it is essential that the individuals with the most appropriate expertise are able to participate in standards work directly, as this will lead to more rapid and applicable standards.

It is not a problem for Europe that there is no formal 'European' presence in global standards bodies or in consortia. It can instead work to the advantage of European stakeholders, in that in global standards bodies the European Union has 25 votes whereas the US has one. National coordination is rarely desirable or effective in any case, for example, when the US tries to coordinate ITU contributions on a national basis it often shoots itself in the foot and hinders US industry objectives as these are subverted to National political objectives. We certainly don't want that to apply in Europe!

4. SO WHAT SHOULD BE THE ROLE OF EUROPEAN ICT STANDARDISATION?

The above does not mean that there is no role for a European Standardisation System. There is a clear role for European standardisation as demonstrated well in the ETSI motto "Global Standards happen First in Europe". In other words, European standardisation should drive global standardisation, and a strong European standardisation system gives European stakeholders the opportunity to influence global standards to ensure that they fully meet European requirements.

European industry is very effective at participating in global standards organizations and often has the largest number of representatives at key meetings. European industry drives standards in key areas such as Mobility (3GPP and ETSI TISPAN) and QoS for IP-based networks (IPsphere Forum). There are actually many European participants in the IETF although the most prominent ones are often bought by US companies (e.g. Cisco) - so it is the availability of capital that is the issue here. The problem of the European market being slower to take up ICT standards once developed has little to do with the standards processes per se – it has more to do with:

a) The homogeneity (but not the overall size) of the European market compared with the US. The US has a more harmonised and contiguous market and so US industry has a larger critical mass of sales EU policy should focus on achieving a similar homogenised market for Europe, although it is recognised that language and cultural issues will fragment this to a greater extent than in the US. Note, however, that standards can and should be used to overcome these barriers, and the success of GSM shows that Europe can use standards more effectively than the US to provide a homogenised market.
b) The availability of funding for start-up companies - start-up or capital venture funding is not sufficiently readily available in Europe compared with, say, California.

A European ICT Standardisation Policy should primarily be used to support the aims of i2010 and concentrate on public interest and competitiveness issues. It should then focus on setting up mechanisms that will provide maximum benefit for European stakeholders. This can be realised through a number of mechanisms:

1. Improving the use of and access to standards.
2. Improving links between R&D and standards.
3. Improving coordination of standards between ESOs and fora.
4. Establishing equitable IPR policies.
5. Setting up a single ESO covering all ICT Standards.
6. Accrediting fora and consortia to produce formal standards.

These are described in more detail below:

Improving use of and access to ICT Standards

It goes without saying that, unless standards are used, then the money spent on developing them will have been wasted. Therefore, information on standards should be disseminated as widely as possible and relevant standards should be easy to find and obtain. This is particularly true for ICT standards. Stakeholders (particularly industry) spends vast amounts of time and money developing ICT standards and should not then have to pay to get access to them. ICT standards should be freely available in electronic form and there should be *no* exceptions to this.

The EC should endorse and promote this policy and link any future funding for standards organisations to their making their ICT standards freely available. This should, in particular, apply to

CEN and CENELEC. No further funding should be available without their standards being a) available in catalogues of ICT standards and b) freely downloadable from web sites without charge. The EC should also set up a public portal for ICT standards where standards from all bodies relevant to a particular topic are listed and can be downloaded. This could also provide a place to share information on standards work programmes.

More effective downstreaming of R&D into ICT Standards

Europe spends many billions of Euros on the R&D Framework programmes. However, the benefits of these are not always apparent in improvements to European competitiveness.

The huge amount of R&D programme expenditure must be linked more effectively to ICT Standards. This would be made effective in 2 main ways:

1. Making information on standards available to EU R&D projects in a systematic fashion. This would stop projects re-inventing the wheel and creating specifications which duplicate existing standards unnecessarily. The proposed ICT standards portal would help with this but would not be sufficient.
2. Downstreaming the results of EU R&D projects into ICT Standards. The COPRAS project has shown that over 10% of EU R&D projects have results which are relevant to standards, and these should be helped to contribute their results to the appropriate standards bodies and fora in the most effective way. Funding should be provided to allow projects to continue to participate in ICT standards after the formal close of the project.

However, at the end of the day, the successful exploitation of R&D through Standards depends on more effective communication, interaction and interworking between DG Enterprise and DG Information Society within the EC. Budgetary changes and restructuring may be necessary to improve this as it should be realised that standards have a wider role in European competitiveness.

A Central role for Europe in coordination of ESOs and Fora?

Coordination between standards bodies and fora is not very effective at present. The role that some bodies play in the standards process is generally well recognised, for example, the IETF in the development of IP-based protocols or W3C in the development of Web-based protocols, whilst others are in direct competition. However with the convergence of the ICT industries, there is a danger that the ESOs (in Europe) or ISO, IEC, and ITU (globally) will develop standards and so called "new deliverables" that compete with each other, thus wasting the industry resources used to develop them.

It was for this reason that the ICT Standards Board (ICTSB) was set up in 1995. This involves collaboration between the three European Standards Organizations (ESOs) and around 20 fora and consortia in relevant areas including W3C, ISOC (the parent of IETF), Liberty Alliance, OMA, OASIS,

and The Open Group. It therefore acts as a bridge between the formal standards bodies and the fora working in related areas. The mission of ICTSB is to analyze standards requirements from any competent source based on market needs, translate these into coherent standards work programmes, allocate work items to its members, and monitor progress to ensure the job is done. It has so far worked on standards for electronic signatures, Design for All, intelligent transport systems, smart houses and network & information security. However, ICTSB can only work properly if the members let it do so, and the EC should give it some teeth so that it can do its job of allocating work to bodies effectively.

Membership of ICTSB is currently only open to standards bodies and fora that have some kind of European presence. However, it has been gradually extended to fora and consortia at a global level and could be effective at coordinating the work programmes of many more bodies worldwide.

An existing example of coordination between standards bodies at the global level is the Global Standards Collaboration (GSC). GSC meetings are held annually and involve all SDOs in the telecoms area. These include:

- ACIF Australian Communications Industry Forum
- ANSI American National Standards Institute
- APT Asia Pacific Telecommunity
- ARIB Association of Radio Industries and Businesses (Japan)
- ATIS Alliance for Telecommunications Industry Solutions (US)
- ETSI European Telecommunications Standards Institute
- ITU International Telecommunication Union
- TIA Telecommunications Industry Association (US)
- TSACC Telecommunications Standards Advisory Council of Canada
- TTA Telecommunications Technology Association (Korea)
- TTC Telecommunication Technology Committee (Japan)

Establishing equitable IPR policies

The ICT Standards market is moving towards RF—especially for IT, applications, and eBusiness areas—and simultaneously towards proprietary solutions to avoid the IPR morass.

Insisting on an RF IPR policy for all standards bodies may be counterproductive, as essential components of a standard may then be withheld by a significant license holder, potentially causing a roadblock to further development of that standard. In fact, insistence on RF policies could actually encourage the very thing that they are meant to prevent — lots of hidden IPR claims by companies who are not participating in the standards work. On the other hand, we must discourage companies from declaring IPR as "essential" when it is not, especially since the rules make it easy for them to do so. Many times, the IPR turns out not to be essential after all. Declarations of non-essential IPR should be discouraged, and IPR declarations in standards bodies should be the exception rather than the rule. Therefore, the ideal IPR policy may be a mixture of RF and FRAND, which encourages RF but allows for exceptions. This is perhaps best expressed in the CEN and CENELEC IPR policy, which follows

rules developed by ISO and IEC. These policies expect RF to be the norm, but add: "If in exceptional cases, technical reasons justify the preparation of a European Standard in terms which include the use of a patented item, there is no objection in principle to such a step, even if the terms are such that there are no alternative means of compliance". It then goes on to specify standard FRAND terms…

Patent reform is at last being progressed in 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 be used in the standard being developed, and could result in a 'bidding down' of IPR license fees for the winning technology. FTC Chairman, Deborah Majoras, is encouraging these discussions (see www.ftc.gov/speeches/majoras.htm), and states that such ex-ante discussions would not be treated as anti-competitive and restraints on trade.

This type of proposal is also the subject of the new ETSI IPR Group that has been set up following the ETSI General Assembly in November 2005. A European ICT Standards Policy should support and encourage these initiatives rather than considering them as anti-competitive.

A single ESO for ICT Standards?

Currently there are 3 ESOs which, due to convergence, are active in the ICT sector:

- CEN/ISSS – for IT, eBusiness and eMarketplace standards.
- CENELEC – for Home Networking and Cable TV standards
- ETSI – for all Telecommunications standards

What is needed, as the ETSI HLRG report pointed out, is a seamless environment for the development of all ICT standards. The NGN needs seamless interoperability between the core, access and home networks and the CPE (terminals). There must be seamless interoperability between the home terminals (CPE) and the access network (the access network must be designed with the terminals in mind), with appropriate QoS for the services being supplied, and it must be possible to remotely manage the home terminals from the network across firewalls.

To get all this to work effectively it must be well coordinated and ideally the formal standards would be produced in a single body (not 3 as at present) with similar procedures and deliverable types being used. The standards should be produced in an environment that allows direct participation of the relevant actors (as for ETSI at present), not one which is mediated and controlled by NSBs and thus is perceived by the relevant actors to inhibit participation.

Many of the specifications will be produced by fora and consortia for the reasons given earlier, but these should be endorsed by a single ESO (as for DVB) using one set of procedures and deliverables. For example, there is little attempt at present to align the Smart House work in CENELEC with the

NGN@Home initiative in ETSI or with DVB. European industrial competitiveness is suffering because of the ineffectiveness of the ESOs in this area (and in ICT standards generally).

Accreditation of Fora and Consortia to produce Formal Standards

To speed up this process, it should be possible to accredit fora and consortia that are sufficiently open and transparent to allow them to produce formal standards directly, and to be paid to produce standards to meet the needs of European mandates. There is little added value, for example, in ETSI spending time and resources in endorsing the W3C WAI specifications to turn them into formal standards, when W3C has already done all the work that is necessary through an objectively open and transparent process. The real question is what constitutes an open and transparent process and how would you recognise one?

The ICTSFG [2] looked at this in depth and concluded that an open standards process is one which is carried out in a public process and includes the following steps:

1. Starting a project which includes agreeing on the scope and conducting a requirements gathering activity;
2. Drafting the technical content of a standard and building consensus on it;
3. Validating the contents of the draft. Often this is achieved through a public review process, but some organizations achieve it through ensuring that the activity is publicly known, and through the participants drawing up the specification being sufficiently representative in the first place;
4. Verifying the interoperability of implementations. This may be achieved as an integral part of the process or left to the parties involved;
5. Ratification by the members through either a voting or formal consensus process;
6. Publication;
7. Maintenance.

Following this process, an open standard should be:

1. developed and/or affirmed in a transparent process open to all relevant players, including in-dustry, consumers, and regulatory authorities, as indicated above
2. either free of IPR concerns, or licensable on a (fair), reasonable, and non-discriminatory ((F)RAND) basis
3. driven by stakeholders, with user requirements fully reflected
4. publicly available
5. maintained

These definitions were modified slightly by the ETSI Open Standards Conference and endorsed by the Global Standards Collaboration but the concepts remain unchanged. It should be possible to apply these rules in a fair and unbiased manner to determine whether a forum is open and transparent and

therefore to accredit it to produce formal standards. The ICTSB could form the basis of such an accreditation mechanism until the 'single ESO for ICT Standards' is set up.

5. RECOMMENDATIONS

Top level recommendations arising from this paper are as follows:

1. The EC should encourage attempts to make standards freely available to all. ETSI makes its standards freely available without charge but CEN and CENELEC (and the NSBs) charge for copies of standards. The EC should make the future funding of CEN and CENELEC dependent on their standards becoming freely available in electronic form.
2. The EC should ensure that all stakeholders are able to participate effectively in standards bodies, by the allocation of appropriate funding if necessary.
3. The EC should encourage and promote discussions towards a fair and equitable IPR regime where stakeholders get together with IPR holders prior to a standard being developed.
4. A single body should be created at European level to develop all ICT standards. This should be based on the ETSI model of direct participation by stakeholders (rather than via NSBs). It should include the ICT parts of CEN (CEN/ISSS) and the parts of CENELEC dealing with home networking and cable TV distribution systems.
5. ICTSB should have a stronger role in the coordination of ICT standards. It should have the role of accrediting fora which produce 'open standards' against clear guidelines. These fora should then be eligible for funding by EC to produce European standards (ENs) where relevant. This function may be subsumed into a European ICT Standards body once created.

6. REFERENCES

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3. Dickerson, Keith & Valet-Harper, Isabelle, "A Cornucopia of Critical Issues in ICT Standardization", The Future Generation Standards Conference, Sophia Antipolis, December 2004.
4. "An ETSI Strategy from HLRG" ETSI High Level Review Group report and recommendations (2005)

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7. DEFINITIONS

3GPP Third Generation Partnership Project (a consortium of five standards bodies including ETSI's creation of standards for Third Generation mobile networks).

API Application Programming Interface (allows a service to be invoked by software).

B2B Business to Business.

CEN Conseil Européen pour la Normalisation. Responsible for formal standardisation in areas other than electrotechnical and telecommunications.

CENELEC European Committee for Electrotechnical Standardization

COPRAS EU R&D Framework Programme project on Cooperation on Research and Standards.

ENs: European Norms - formal standards on the basis of the New Approach.

ESO European Standards Organization. The three formally-recognised ESOs in Europe are CEN, CENELEC and ETSI.

ETSI European Telecommunications Standards Institute (home of the GSM standards and the TISPAN project).

EU Standard Standard produced in accordance with the EU standardisation policy.

EU Standardisation The production/adoption of standards but only within the ICT broad subject area.

EU (or European) Standardisation Policy The policy framework governing standards-setting activities and standards in Europe, that is primarily defined by policy and legal instruments adopted by the EU institutions.

EU Standardisation System The operational/organisational structure of standards-setting activities in the European Union.

Fora & Consortia Standards-setting *organisations* that are primarily formed by private stakeholders with an interest in the development of a specific standardisation activity or standard.

FRAND Fair, Reasonable and Non-Discriminatory (sometimes known as RAND).

GSC Global Standards Collaboration.

GSM Global System for Mobile (basis of Second Generation mobile services throughout most of world).

ICT Information and Communications Technologies.

ICTSB ICT Standards Board.

ICTSFG ICT Standards Focus Group (a focus group of ICTSB).

IEC International Electrotechnical Commission

IETF Internet Engineering Task Force (the originator of the IP protocol).

IP Internet Protocol (the basis of all next generation voice and data networks).

IPR Intellectual Property Rights (covering copyright, patents, and trademarks).

IPv6 Version six of the Internet Protocol

ISO International Organization for Standardization

ISOC The Internet Society (parent body of IETF).

ISP Internet Service Provider.

ITU International Telecommunication Union (the originator of most globally recognised telecommunications standards).

LIF Location Interoperability Forum (now merged with OMA).

MPLS	Multi-Protocol Label Switching (IETF standard for providing connection-oriented IP services).
NGN	*Next* Generation Network (term used *primarily* in ETSI and ITU).
NSB	National Standards Body established in an EU Member States (e.g. BSI, Afnor, DIN).
OJ	Official Journal of the European Union.
OMA	Open Mobile Alliance.
OSS	Operational Support Systems (the components that a company uses to run its network and business).
PSTN	Public Switched Telephone Network (sometimes known as POTS). Taken here to mean all existing circuit switched public networks including those based on ISDN and GSM.
QoS	Quality of Service (defines the characteristics of a service, e.g., latency, error rate).
RF	Royalty Free (referring to IPR included in a standard).
ROI	Return on Investment.
SDO	*Standards Developing* Organization (any organization that develops recognised standards).
SIP	Session Initiation Protocol (used to set up VoIP and multimedia calls over an IP-based network).
Standards	The deliverables of a standardisation activity, being formal ENs or pre-standards or technical specifications or any other types of outputs of a standardisation initiative (hence, standards in the wide sense of the term).
TISPAN	Telecommunications and Internet converged Services and Protocols for Advanced Networking
TMF	TeleManagement Forum (the origin of many new OSS standards/concepts).
VDSL	Very high speed Digital Subscriber Line (basis of providing >1 Mbit/s services to customers).
VoIP	Voice over IP (a method of transporting speech over the Internet).
Wi-Fi	Wireless Fidelity: a set of standards based on IEEE 802.11 for wireless local area access