

## **Annex to NEM SRA v7: Relevant Standardisation bodies for NEM research topics**

Many R&D projects become frustrated as the consortium is disbanded at the just time they have got relevant results (usually the end of the project lifetime). Efforts continue to conduct standardization activities beyond the life of the Consortium but these efforts are less efficient because of pragmatic, legal, administrative or technical reasons, as the Consortium is not longer motivated to further cooperate beyond the project end and can not continue making use of the funds available because the project has ended beyond its lifetime. When a project foresees the achievement of results potentially suitable for producing inputs to standardization bodies, the contract should foresee that some activities could be conducted after the project formally ends but assuming that funds will continue to be applicable during this extended period.

The NEM community would like to be instrumental to push, and when feasible, coordinate standardisation efforts with the most relevant standards groups to NEM:

- ITU:

ITU's mission is to enable the growth and sustained development of telecommunications and information networks, and to facilitate universal access so that people everywhere can participate in, and benefit from, the emerging information society and global economy. Specialists drawn from industry, the public sector and R&D entities worldwide meet regularly to thrash out the intricate technical specifications that ensure that each piece of communications systems can interoperate seamlessly with the myriad elements that make up today's complex ICT networks and services.

The awareness of the important change in the media world has led the ITU to establish the IPTV Focus Group. The visibility of the ITU-T IPTV FG has increased significantly since that lots of confidential documents (ATIS IIF, Broadband Forum and also DVB documents) have been input to ITU and therewith now are in the public domain. In addition to the IPTV work, ITU SG4 (satellite services) and SG6 (terrestrial services), are crucial for standardization of NEM related technologies

- CENELEC:

The CENELEC TC 206 committee is taking care of "Consumer equipment for entertainment and information and related sub-systems"

Most of work items are related to NEM activities. Among them, it can be mentioned:

- Equipment interfaces for set top boxes in the digital television domain
- Common interface specification for conditional access and other decoder applications
- Satellite channel router to control outdoor units in the receiving television systems with single dwelling and multiple dwelling units

- ETSI:

Being the body that standardised the successful GSM standard, and being one of the three Standard Development Organisation (SDO's) that are officially recognised by the European Commission, ETSI is well known ICT-related standards body in Europe.

- ETSI TISPAN: TISPAN is responsible for all aspects of standardisation for present and future converged networks including the next generation networks and including service aspects, architectural aspects, protocol aspects, QoS studies, numbering, naming, addressing, routing, security related studies, home devices and home networking aspects, network management, mobility aspects within fixed networks, using existing and emerging technologies.
- ETSI MCD: MCD is the ETSI technical body in charge of guiding and coordinating standardization work aiming the successful overall development of multimedia systems

(television and communication) responding to the present and future market requests on media content distribution.

- DVB:

DVB has produced several specifications relevant to the NEM field of work: The DVB-SH, a hybrid satellite and terrestrial system working in the sub-3GHz frequency domain, enables reception of media related services also in areas that are not (yet) covered terrestrially. DVB-S2 has established itself as the de facto standard for HD satellite transmission. Nearly all satellite HD programmes use H.264 video coding and rely on DVB-S2 transmission to keep the relative bandwidth requirements about the same as for MPEG-2/ DVB-S-based SD transmission. DVB-IPI specifies the DVB-IPTV.

- UPnP/ DLNA:

Also in the UPnP and DLNA arena lots of news have happened recently: DLNA published its Expanded Guidelines in January 2007. Besides QoS (based on UPnP QoS) it includes link protection guidelines and therewith allows local distribution of premium content.

UPnP has started work on QoS 3.0 which for the first time will include the users' preferences into the policy enforcement. This is highly relevant to the NEM domain.

- OMA:

OMA (Open Mobile Alliance): international organization, developing open, market driven interoperable specifications. The OMA focus is on services enablers, to offer functionalities to the application level for building the services to the end-users. TI involvement in almost all the OMA working group aimed to the standardization of several enablers, like Broadcast services, Digital Rights Management, Content Delivery, Rich Media Environment and many others.

- MPEG:

ISO-IEC Moving Picture Experts Group (MPEG): Standardization of digital content representation dedicated to rich-media interactive and stream able services.

- Open IPTV Forum:

The OIPF is a pan-industry initiative with the purpose of producing end to end specifications for IPTV, to take the next generation of IPTV into the mass market. The bases for this activity are the existing and emerging technologies and specifications from a number of other SDOs and interest groups. At present the Forum has published an end-to-end Functional Architecture and seven volumes of technical specifications, covering: Protocols, Content Metadata, Media formats, Execution Environments and Content and Service Protection.

- IEEE:

Originally called the Institute of Electrical and Electronics Engineers, the organization broadened its activities in such a way that it no longer uses this name but kept its initials. Standards-making in IEEE takes place in the so-called IEEE Standards Association (IEEE-SA).

- IETF:

The Internet Engineering Task Force develops and promotes Internet standards, in particular the TCP/IP protocol suit. The TCP/IP protocol is possibly one of the most used and most successful protocols in the world, and is also the basic building blocks for many other system standards, such as 3GPP.

- 3GPP:

The purpose of 3GPP is to prepare, approve and maintain globally applicable Technical Specifications and Technical Reports for:

- an evolved 3rd Generation and beyond Mobile System based on the evolved 3GPP core networks, and the radio access technologies supported by the Partners (i.e., UTRA both FDD and TDD modes), to be transposed by the Organizational Partners into appropriate deliverables (e.g., standards)

- the Global System for Mobile communication (GSM) including GSM evolved radio access technologies (e.g. General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE))
  - an evolved IMS developed in an access independent manner
- HGI:  
The Home Gateway Initiative is an open forum launched by Telcos in December 2004 with the aim to release specifications of the home gateway. HGI was formed to boost the market of home communication services to the millions of broadband customers served by its founding members. The initiative will drive the development of residential gateways supporting the delivery of services. HGI will contribute to appropriate standards bodies and especially to an organization as the ITU-T.
  - W3C  
The World Wide Web Consortium is an international community that develops standards to ensure the long-term growth of the Web. W3C develops technical specifications and guidelines through a process designed to maximize consensus about the content of a technical report, to ensure high technical and editorial quality, and to earn endorsement by W3C and the broader community.
  - SMPTE  
Today, SMPTE serves its members with the latest technology information and education on a rapidly changing industry. SMPTE also is an accredited and globally-respected industry standards-setting body. As the leading technical society for the motion imaging industry, SMPTE is shaping the future of the constantly evolving content business, and is well positioned to provide its members with many unique benefits and opportunities. As part of SMPTE's ongoing goal to advance technical theory is the motion imaging industry.
  - EBU  
The European Broadcasting Union is the largest association of national broadcasters in the world. We promote cooperation between broadcasters and facilitate the exchange of audiovisual content. The EBU works to ensure that the crucial role of public service broadcasters is recognised and taken into consideration by decision-makers.
  - The Khronos Group  
The Khronos Group is an industry consortium creating open standards for the authoring and acceleration of parallel computing, graphics and dynamic media on a wide variety of platforms and devices. All Khronos members are able to contribute to the development of Khronos API specifications, are empowered to vote at various stages before public deployment, and are able to accelerate the delivery of their cutting-edge 3D platforms and applications through early access to specification drafts and conformance tests. The most worldwidely known standard of this group is OpenGL, OpenGLEs and OpenVG specifications for 2D and 3D graphic API.

Along the SRA, several NEM research topics have been identified to fulfil the NEM Initiative's vision for 2020. The aim of the following table is to identify those relevant Standardisation bodies where the different topics concerning the NEM research topics are discussed and therefore where NEM community can make their contributions based on their research activities.

NEM research topic	Standardisation body
Content creation	<ul style="list-style-type: none"> <li>● ETSI</li> <li>● CENELEC</li> <li>● ISO (IEC Moving Picture Experts Group (MPEG))</li> <li>● Open IPTV forum</li> <li>● Khronos</li> </ul>

	<ul style="list-style-type: none"> <li>• W3C</li> <li>• SMPTE</li> </ul>
Networking and delivery infrastructure	<ul style="list-style-type: none"> <li>• IEEE</li> <li>• CENELEC</li> <li>• ISO</li> <li>• ITU-T (ITU-T IPTV Focus Group)</li> <li>• ETSI</li> <li>• DVB</li> <li>• OMA</li> <li>• Open IPTV forum, IEEE</li> <li>• HGI</li> <li>• 3GPP</li> </ul>
Content search and media presentation	<ul style="list-style-type: none"> <li>• IEEE</li> <li>• ISO</li> <li>• ETSI</li> <li>• CENELEC (CENELEC TC206)</li> <li>• IETF</li> <li>• SMPTE</li> <li>• EBU</li> <li>• Khronos</li> </ul>
Technology drivers and enabling technologies	<ul style="list-style-type: none"> <li>• IEEE</li> <li>• ISO</li> <li>• CENELEC</li> <li>• ETSI</li> <li>• ITU SG4 (satellite services)</li> <li>• ITU SG6 (terrestrial services)</li> <li>• DVB</li> <li>• SMPTE</li> <li>• HGI</li> <li>• 3GPP</li> <li>• W3C</li> </ul>
Media-related applications and business models	<ul style="list-style-type: none"> <li>• ETSI</li> <li>• ISO</li> <li>• CENELEC</li> <li>• UPnP</li> <li>• OMA</li> </ul>