



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Report

**The Fully Networked Car
- a Workshop on ICT in Vehicles**

(Palexpo, Geneva, 2-4 March 2005)

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Executive Summary

On 2-4 March 2005, ITU-T and ISO jointly organized a workshop “The Fully Networked Car: a Workshop on ICT in Vehicles” associated with the world-famous 75th International Motor Show in Geneva.

ICT in cars is an area of significant interest and impact to both the telecommunication and the automotive industry. This 3-day workshop consists of an opening session, 8 technical sessions, 3 daily summary sessions and a wrap-up session of the entire workshop, and attracted more than 100 participants with 40 high-quality presentations from key speakers from both the automotive and telecom industry. During 9 sessions, topics such as the need for consensus between the public and private sectors and business models for interlinking the automotive and telecom businesses were discussed. Technically oriented sessions examined topics such as the standardization work on telematics, diagnostics, e-safety application development, the integration of in-vehicle systems with existing and future telecommunications infrastructures and seamless communications on the move.

This workshop introduced standardization work on “Information & Communication Technologies in cars” which has already been done or is being carried on, in particular by ISO TC 204 and ISO TC 22. After exchanging views on the future of ICT in motor vehicles among participants, both the automotive and telecom industry experts stressed the need for more standardization towards a holistic approach of open hardware architecture with standardized interface and open software architecture with standardized APIs. The workshop has shown that both the automotive and the telecommunication industry clearly benefit from standardization initiatives.

A major benefit from this workshop was the dialogue between various ITU-T Study Groups (such as SG12 and 16) and a number of ISO Technical Committees (such as ISO TC22 and 204). Through this workshop ITU-T identified areas where ITU-T can provide solutions are: (a) HMI - Human Machine Interface (SG 12, e.g. voice control); (b) integrating car communication as part of NGN; (c) exploiting the relation between home networking environment and cars.

In order to capitalize on this momentum, a number of outreach efforts were proposed, including the suggestion of ITU-T’s participation in automotive events like the ITS World Congress (November 2005) to show how ITU’s work will benefit the automotive industry, as well as session (or sessions) on the Networked Car in various ITU-T workshops, such as Home Networking, NGN and Ipv6.

After this workshop, ITU-T sees a clear interest and support (particularly from the car industry) for a follow-up workshop in 1-2 years. ITU-T will discuss shortly with Palexpo and the Geneva Motor Show how a next “fully networked car” event could be more closely integrated in the Geneva Motor Show.

This workshop consented again that the fully networked car could only be achieved by fostering collaborative efforts on the international level. This workshop saw the collaboration among ISO, CEN, ETSI and ITU where all participated in the panel organising this workshop and called for strengthening this collaboration and collaboration with other SDOs.

All sessions and conclusions of the event are now available on the web: <http://www.itu.int/ITU-T/worksem/ict-auto/index.html> and ITU is hosting an audio-archive of this event at: <http://www.itu.int/ibs/ITU-T/ict-auto/>.

Highlights of Sessions

Opening Session

This session was chaired by Mr. Paul Najarian, Director of Telecommunications & Standards of Intelligent Transportation Society of America. Mr. Houlin ZHAO, Director of ITU-TSB made the welcome speech. 3 Presentations in this session reviewed the current status of telematics market and highlighted the importance of synergy between all stakeholders for the future success.

This session illustrated the overall objective of this workshop: to bring the automotive and telecommunication industries together to exchange ideas on the future of information and communication technologies (ICT) in motor vehicles.

Session 1: Business Model Discussions

- Business model of ICT in vehicles should be studied in a holistic perspective, addressing the technical, economic, cultural, and political challenges, and moving from engineer and government focus to customer and business focus.
- We need to define a clear vision and implementation roadmap that makes sense given value chain complexity and system component relationships.

Session 2: The Policy Issues – Safety, Security, Privacy and Liability

- Safety: How does it aid the driver and safe operation? How does it improve safety for non-equipped vehicles
- Privacy: Who owns the vehicle data? Who can use the data? Is anonymity assured?
- Liability: Vehicle owner, automaker, infrastructure, and data
- Security: What are the implications?

These policy issues must be resolved in order for VII to be realized, and data privacy is a priority subset of data policy due to the need for public awareness and support.

Session 3: Standards Harmonization

- Collaboration, not competition, between SDO's
- More timely, market related, delivery of Standards
- Mutually supporting Standards environment
- Greater struggle to evolve the business model for SDO's

Session 4: eCall

To introduce eCall as a standard option on new type-approved vehicles from model year 2010 onwards it is required that all stakeholders, in particular all major Member States and insurance companies also sign a MOU (already signed by the Automotive Industry, the European Commission, ERTICO and another 30 stakeholders) and commit necessary resources. Furthermore, a sustainable business model needs to be worked out until end of 2005 not to risk the planned introduction dates.

Session 5: Diagnostics

- Diagnostic should be taken into account from engineering department, to the publication of diagnostic solution.
- Because of cost and complexity, new methods should be developed to avoid the complete system description and pattern recognition is one of these diagnostic methods.
- Standard are important everywhere in the diagnostic process.
- Wired communication is the classic diagnostic solution today. Wireless communication appears to facilitate productivity and to ease the use of diagnostic solutions.

Session 6: Network Platforms

Due to the increasing number of networked electronics components, a level of complexity has been reached which cannot be managed using traditional development processes and lack of standardization. Government, traffic authorities and environmental agencies are also critical stakeholders. The automotive industry needs systems engineering, meaning a paradigm shift from a hardware, component-driven to a requirement and function-driven development process, and standardization.

Session 7: In-Vehicle devices and Human Machine Interface (including Voice Interface)

- Importance of performance and good design of the HMI and Voice interfaces for two highly complementary objectives: better safety and better comfort .
- With better Quality of Services and designs, HMI improves the safety
- Car industry and partners have expressed their wishes for better quality and better understanding of user expectations
- Cooperation will give solutions to these issues. Reciprocal presentations in the relevant meetings could be one way.

Session 8: Seamless Communication on the Move

- MM Telecommunications trends to Any device/Anybody, Any where (nomadicity, mobility), Any time
- Seamless provision of MM Services and Applications is a clear requirement (voice, data, video) for mobile customers (retail and business)
- Mobile users are operating in a specific environment: access to additional facilities for security, navigation, entertainment, driving assistance, diagnostics, etc.
- Needs for inter-working between “on board” and “off board” capabilities at service, terminal and network level
- Key topics for standards coordination:
 - o End-to-End Architecture “OSA” (e.g. OAM, APIs...)
 - o Service capabilities (e.g. Performances, QoS ...)
 - o Specific interfaces (e.g. HNE ...)

Workshop Conclusions and Recommendations

ICT have an ever-increasing share of innovation and added value in the automotive industry. This trend, which is widely assumed to continue well into the next decade, is driven by safety, assistance, comfort and legal or environmental requirements. Standardization becomes more and more critical to manage the complexity introduced by the increasing number of networked electronics components in vehicles. The workshop has shown that both the automotive and the telecommunication industry clearly benefit from standardization initiatives.

A major benefit from this workshop was the dialogue between various ITU-T Study Groups (such as SG12 and 16) and a number of ISO Technical Committees (such as ISO TC22 and 204). Through this workshop ITU-T identified areas where ITU-T can provide solutions are: (a) HMI - Human Machine Interface (SG 12, e.g. voice control); (b) integrating car communication as part of NGN; (c) exploiting the relation between home networking environment and cars.

In order to capitalize on this momentum, a number of outreach efforts were proposed, including the suggestion of ITU-T's participation in automotive events like the ITS World Congress (November 2005) to show how ITU's work will benefit the automotive industry, as well as session (or sessions) on the Networked Car in various ITU-T workshops, such as Home Networking, NGN and Ipv6.

Next Workshops

After this workshop, ITU-T sees a clear interest and support (particularly from the car industry) for a follow-up workshop in 1-2 years. If future workshops are to be held with the Geneva Motor Show at Palexpo, these workshops must be associated with an exhibition or pavilion dedicated to the "Fully Networked Car". A number of the participants were already willing to provide prototype models and displays.

However, the benefit of associating next workshops with the Geneva Motor Show need to be further studied. In order to integrate this workshop as a main-theme of the Geneva Motor Show, we will need more interest and support from the organization committee of the Motor Show to make it feasible. ITU-T will discuss shortly with Palexpo and the Geneva Motor Show how a next "fully networked car" event could be more closely integrated in the Show.

ANNEX

WORKSHOP EVALUATION

113 people attended the three-day workshop. 26% of the participants completed and returned the evaluation form. The data gathered from these respondents show that 46% were from the Telecommunications Industry, 20% from Automotive Industry, the remaining 34% were from Research Institutions, Universities, Standard Developing Organizations, media and other entities.

The ratings for whether the subject was of interest to participants show that Sessions 1 (4.0), Session 4 (4.2), Session 7ii (4.1) and Session 8 (4.3) were of most interest, and Sessions 2 (3.6), Session 3 (3.7) and Session 5 (3.3) were rated relatively lower.

The ratings for the Quality of the Sessions show higher ratings for Sessions 4 (4.2) and Sessions 4 8(4.0), relatively lower for Session 3 (3.6).

1= very dissatisfied, 2= dissatisfied, 3= neutral, 4= satisfied, 5= very satisfied

The average overall ranking of the Workshop is: 4.2.

More than 60% of the respondents have stated that they would like to see another event on automotive issues. The topics suggested are more on eCall, more technical details on inter-vehicle communications, vehicle infrastructure systems, voice user interfaces, privacy and wireless to and from vehicles.