



ISI-EC Satellite Communication Consultation Event

Brussels – February 20, 2008

The European Commission, in cooperation with the ISI (Integral Satcom Initiative) European Technology Platform, organized the Satellite Communication Consultation Event on February 20th, 2008. The objective of this event was to bring together representatives from Institutions, Industries, Research Centers, User Communities and Academia in order to deal with the fundamental aspects which will drive the future evolution of European Satellite Communications.

The Satellite Communication Consultation Event was intensively supported by a wide number of participants and contributors representing European and Member States Institutions together with the main stakeholders of the Satellite Communication domain. The structure of the event was divided into two sections. During the first one it was shown the relevance of the Satellite Communications for the entire Space sector. This aspect can be clearly appreciated in the ESA presentation through figures like the following ones:

- 20 out of 21 satellites placed in orbit by Ariane 5 and Soyuz in the last year are Telecommunications Satellites.
- More than 50% of the turnover of the European Satellite Industry corresponds to Telecommunications Satellites.

A further very important aspect that was illustrated is the complete integration and interoperability of satellite communications with the terrestrial networks: the complementary functionalities offered by satellite communications are important for the development of the Future Communications Networks.

Key European challenges can be faced and existing difficulties can be overcome thanks to an integrated approach with terrestrial and satellite communications moving ahead together.

The need to deal with satellite communications in a harmonized way and at European level (to avoid cost duplications and permit full inter-operability of services at European level) was clearly stated.

On the basis of the above considerations on the role of satellite communications, and the need to have a harmonised European approach, the ISI Chairman presented the ISICOM system concept. ISICOM (Integrated Space Infrastructure for global COmmunications) is intended to be the ISI proposal for an advanced Satellite Communications System fully integrated with the Global Network of the Future and able to complement Galileo and GMES by adding important functionalities. Fully compatible with the Future Internet principles, ISICOM will be a system of advanced next-generation GEO and LEO satellites with very high data rate telecommunications capabilities (including inter-satellite links). Furthermore, the global coverage of ISICOM will permit to exploit the system capabilities also outside the European borders, for instance to permit European operations outside the EU and to assure security and enhance situation awareness by anticipating possible threats generating outside Europe.

The second section of the Satellite Communications Consultation Event was focused on the key aspects on which the satellite communications industry intends to devote considerable research and innovation efforts.

In this regard, strategic R&D priorities for the satellite communications industry field were presented, putting special emphasis on:

- Integration between satellite communications systems and terrestrial communications systems.
- Integration with the Future Internet infrastructure, with communications satellites intended as intelligent Internet nodes.
- Integration between Satellite Communications and Navigation (Galileo) and Earth Observation (GMES) systems.
- Innovative architectures and operational models to cope with global system coverage and operation
- Optical communications (e.g. advanced optical demodulation).
- Networking in the space; Inter-satellite Links, On Board Routing.
- Usage of high frequency bands.
- Adaptive resource allocation (ACM, adaptive power allocation).
- User terminals: develop low cost hybrid (satellite and terrestrial) terminals.
- High elaboration performance in radiation critical environments and component miniaturization.
- Low energy consumption and sustainable systems.
- Trust, secure and dependable system development.
- Advanced satellite and user terminal antenna systems (both reflectors and phased arrays).
- Quality of Service and dynamic resource and spectrum management.

In addition to this R&D challenges, it was also remarked the importance that should be paid to regulatory issues, licensing procedures, and spectrum harmonization at European level, considering that most of future satellite communications services will be provided at European (and Global) level and this can only be achieved if the regulatory framework is properly harmonized.

The European Commission, the European Space Agency and ISI agreed on the need of R&D developments in the satellite communications field in order to make it possible for the European satellite communications and space industry to be one of the worldwide leaders. The R&D is to be fully integrated in the general (terrestrial) European ICT developments.

During the first panel the importance that traditionally and currently SatComs have for European ICT, and Space sectors from economic and strategic perspectives was especially highlighted, while at the same time stating that research is the main tool to maintain this privileged position which might otherwise be threatened by new entrants in this market. R&D was definitively identified as the most appropriate instrument to improve present performances, develop new concepts and architectures, new business models and service paradigms.

Among other important challenges that SatComs are facing, spectrum and regulatory aspects were identified as one of the most critical issues to be dealt with. The current regulatory framework is in some aspects obsolete, and is not coherent with current technologies, and spectrum/power requirements. Advanced cognitive technologies for spectrum management and sharing should be intensively used in order to permit a shared use of spectrum by different technologies.

The role that SatComs should play in Future Networks, and particularly in the Future Internet, was also one of the main points discussed during this session. The evolution of the technology and market scenario is moving towards interoperability of satellite communications systems with the terrestrial communications networks, and this is the way in which future networks should be seen, as a hybrid seamless network, in which Satellite Communications will be an essential part for the development of the Global Communications Networks of the Future.

The ISICOM (Integrated Space Infrastructure for global COMMunications) concept was finally presented, as an ISI response to European needs for global communication networks, ubiquity and trustability. ISICOM capabilities will be providing assistance in the following missions:

- To improve cooperation between security forces in maintaining peace and stability in Europe.
- To improve disaster management relief actions through the deployment of global, robust communication systems.
- To offer synergy and telecommunications infrastructure to GMES and Galileo.
- To offer ubiquitous access to ICT services to all EU citizens.

During the last three years, ISI has defined and updated the Strategic Research Agenda for Satellite Communications, working continuously for the development of the SatCom sector in Europe through the promotion of R&D and addressing main the challenges faced by the European SatCom sector. ISI is involved in the implementation of its SRA through various initiatives, like ISICOM and Future Internet, where SatComs will play an essential role.

About the Integral SatCom Initiative (ISI)

ISI is the European Technology Platform on Satellite Communications, whose membership embraces all relevant and interested private and public stakeholders from Satellite Communications and the Space sector. Currently ISI involves more than 180 member organizations from 29 Countries.

The ISI European Technology Platform brings together for the first time in a unified, industry-led body all research, technology and innovation aspects related to satellite communications, including mobile, broadband, and broadcasting applications.

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