Contract no.: 257118

# FISI Project - contract n°257118

# D4.4.1 SatCom event concept – 1st year


## FISI project executive summary

The FISI project aims at supporting the Integral SatCom Initiative (Technology Platform) in defining a strategic vision on innovation priorities to reinforce the competitiveness of the European SatCom industry and in promoting emerging SatCom architectures in response to EU policy objectives.
Involving leading European satellite manufacturers, Research Institutes/Universities, SME, and a Service provider in the SatCom domain, FISI will serve the interest of all European SatCom industry stakeholders gathered in the ISI technology platform (www.isi-initiative.org) by highlighting and promoting the added value of emerging SatCom architectures in the support of EC grand challenges including broadband for all, security and Future Internet; Harmonising the research and innovation priorities for the European SatCom industry sector; And promoting an ambitious framework program to maintain the technological edge, international competitiveness and market share of the European SatCom industry.

## Abstract

This deliverable contains the ISI SatCom event concept for the first year of the project, in terms of objective, scope, format, invited external stakeholders, as defined by WP4 of the FISI project. WP4 is devoted to promote emerging SatCom architectures as well as the ISICOM initiative towards end-users and research community through the organization of public SatCom event at international level. On the other hand, WP4 aims at promoting ISI Technology Platform by the management of the ISI web-site and by the creation of two databases concerning ISI members' competence and expertise, and European training and educational courses, respectively.

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# 1 Introduction

This deliverables contains the description of the 4th ISI SatCom event (concept and organization) which will be held on October 18-19, 2011 in Brussels, Belgium.
The ISI SatCom event aims at opening the discussion on topics related to the role of the emerging SatCom architectures in Europe, taking into account R&D activities and their potential mapping onto European standards.
A long procedure of selection of potential topics has been carried out and, eventually, eight main topics have been identified in order to be addressed during the SatCom event concept, in addition to a topic aimed at opening the plenary session of the event by approaching SatCom from a higher level:

- **Topic #1 - ISI & EU security:** to define how SatCom can support EU internal and external security, also including support to emergency services to face global and local crises, and to identify the SatCom role in a global, integrated & secure communication infrastructure.
- **Topic #2 - ISI & Standardization:** to inform standardization organizations about ISI R&D activities in order to adapt standardization process to best support research and to implement the ISI Strategic Research Agenda (SRA) into European standards.
- **Topic #3 - ISI & Future Internet:** to define how satellites can play a part in meeting the grand challenges in future networks, to specify the SatCom role in the Future Internet framework, and to identify SatCom key features to be applied in the Future Internet services.
- **Topic #4 - ISI & Emerging Economies:** to define how SatCom can support developing countries, for which application scenarios (public services, emergency services, telemedicine, e-learning, etc.) SatCom can be a key technology in those countries which lack in infrastructure and how SatCom can help to bridge the digital divide in such countries.
- **Topic #5 - ISI & Energy/Environment:** to define how satellites can contribute to reduce energy usage and to environmental resources monitoring and management, to discuss how SatCom can support the CO2 emissions and to identify the role that SatCom can play in Smart Grids.
- **Topic #6 - ISI & Rural Developments:** to discuss how future Satellite Broadband access can contribute to the development of rural areas.
- **Topic #7 - ISI & Network Media:** to discuss the evolution of the networked media service context in order to identify trends for satellite systems and possible opportune hybridization of service with broadband.
- **Topic #8 - ISI & International Research:** to discuss possibilities to cooperate with partners beyond Europe, regarding cooperative research at earlier stages of the overall innovation chain.

Such topics have been collected and enriched through discussion at Steering Council level and have been presented at the 12th ISI General Assembly on November 30, 2010, in Brussels, Belgium.

The 4th ISI SatCom event has been also advertised among all ISI members during the 13th ISI General Assembly on June 15, 2011, Warsaw, Poland. ISI members feedback has been also used to identify Key people to be invited at the event and to produce a roadmap for the event advertisement in all of the interested areas, e.g., Academic, Industrial, Operators, End users fora, Public Administrations, Agencies, etc.

Afterwards, a further selection procedure of topics described above has been performed and, during the ISI Steering Council meeting which has been held on June 15, 2011 in Warsaw, Poland, only six topics have been selected to be discussed during the 4th ISI SatCom Day.

In the following, the ISI SatCom event planning and the selected final topics are described while the discarded topics are reported in the Annex.

# 2 ISI SatCom event planning

The proposed format of the *"4th ISI SatCom Day 2011"* is a *panel* where ISI members and guests are invited to an open discussion in order to define strategies and provide solutions for end-user needs on the topics proposed in this document.

The ISI SatCom event will be a two half-day meeting (October 18, 2011 in the afternoon, October 19, 2011 in the morning) and will be structured in key note speeches and panel discussions where participants will be invited to present their vision on the selected topic. The format will mirror the successful one adopted in 2010 for the SatCom event.

In particular, it is proposed to organize 2 sessions on the first day afternoon and 4 sessions on the next day.

The event will be designed according to the *"III"* model:

- *Informative* for the ISI community to understand the context that SatComs has to deal with.
- *Innovation* centric so that the ISI community can prepare itself for the future by detecting the needed evolutions on SatCom and how to facilitate introduction of changes onto the market.
- *Interactive* with open discussions among the panellists and with the audience.

The event is scheduled for October 19, 2011 in Brussels and it will be adjacent to ISI General Assembly 2011 and co-located with PSCE forum.

It is worth highlighting that Brussels was selected to host the events in order to raise awareness about the issues SatCom can solve to EC, EP representatives.

Sponsorships will be searched in order to support collateral events such as lunches and/or dinner.

## 2.1 Target audience

In order to better adjust the later dissemination activities, and the detailed definition of the programme and content of the event, a clear description of the target audience shall be made during this preparatory phase. The event targets:

- Technical experts in the area of satellite communications from the industrial and academic fields.
- Public administration representatives from European and national bodies, with particular focus on rural areas and European Regions under the convergence objective of structural funds.
- Third countries representatives, both as potential technological partners and end users.
- Medium and high positions in the direction of technical and research departments.
- Companies from user sectors such as security, transport, etc.

# 3 Opening Topic: "SatComs strengthening EU competitiveness and tackling Grand societal challenges"

## 3.1 Rationale and Goal

This opening session aims at providing an overview of the SatCom contribution to EU competitiveness and Societal challenges. In particular:

- It shall present success stories of European SatCom industry exploiting research and innovation projects supported by public funds to increase its market share.
- It shall also address cross fertilization of techniques, technologies and process between the SatCom industry sector and other sectors.
- It shall highlight how SatCom can contribute to select Societal Challenger among which rural development, security, climate change, energy.

## 3.2 Potential Panel Organizer

The candidates for the Panel organization are:

- ISI Chairman
- ISI Vice-Chairman

## 3.3 Panelists Profile

A panelist will be invited from each one of the following organization:

- ESA
- CNES
- ESOA
- Astrium Satellite
- Thales Alenia Space
- Other national space agencies

Representatives of the DG ENTR, DG INFSO and DG Research will be invited to provide their feedbacks on these presentations and a discussion on how to improve SatCom impact will be triggered.

In addition, Representatives of the following ETPs will be invited to provide their feedbacks on how to reinforce the interest for cross fertilization between SatCom industry and other sectors:

- Net!Works ETP
- Photonics ETP
- NESSI ETP

## 3.4 Background

SatCom specific contribution is not well known and therefore it is necessary to inform about SatCom capabilities.

# 4 Topic #1: ISI & EU security

## 4.1 Rationale and Goal

This panel aims at discussing the opportunity to launch an ambitious framework program on SatCom to the institutional demand in SatCom for Security at European Level in support of a European Security policy and at identifying the way forward.

## 4.2 Potential Panel Organizer

The following positions are possible candidates for the Panel organization:

- the Leader of the ISI Markes & SatComs solutions Working Group
- the Leader of the ISICOM Task force

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 4.3 Panelists Profile

A panelist will be invited from each one of the following categories:

- End User groups representatives
- Manufacturers
- Service operators and providers
- Public Administrations
- European Commission/DG Enterprise
- European Space Agency
- United Nations

The invited panelists from the above categories will be selected on the basis of their involvement in the security field.

## 4.4 Background

Internet architecture is progressively going towards a saturation point, and new technological challenges must soon be tackled. Currently, security is supported very weakly by the core network. Hence, Europe needs a **secure** and **resilient telecommunications infrastructure** to prevent and respond to crisis or disaster situations wherever they may occur with effective means of surveillance, coordination, and control.

The development and deployment of an innovative SatCom system dedicated to serve Security demand need to be discussed in order to identify proper actions in support of European Security.

Targeted end-users of this new infrastructure are institutional organizations such as civil protection, police, customs and coast guards, Non Governmental Organizations and, potentially, defense institutions, which need to support at least eight types of **security related missions**:

- **Crisis management** in case of natural or man-made disasters or complex emergency situations with casualties that cannot be handled at national level.

- External security actions like **peace keeping** missions.
- **Border** and **maritime surveillance** aimed at understanding of all activities carried out at sea or at land borders that could impact the security, safety, economy, or environment of the European Union and its Member States.
- **Critical infrastructure surveillance** and **protection** (Power, Water, Oil & Gas utility network, etc.).
- **Transport security**.
- **Security of citizens**.

In particular, thanks to their features, SatCom services can bring substantial and tangible benefits to public safety related missions allowing more efficient coordination of the operations and the planning of the necessary logistics, as detailed in the following:

- Benefits for the European citizens
  - Faster response time in the crisis management.
  - Provision of permanent, secure and resilient communications.
- Benefits for the European Union
  - Improvement of its efficiency in handing crisis.
  - European autonomy on the key assets supporting EU security policy.
  - Cost optimization associated to resilient telecommunication services for security.
  - Harmonized infrastructure to support the pan-European civil protection organization.
  - Cost sharing between many organizations, while providing each of them "always-on" connectivity.
  - As a tool to provide capacity that would considerably help to serve TLC needs of Developing Countries when appropriate.
- Benefits for the Europe SatCom industry
  - Contribution to the set-up of a coherent European Space Industrial policy.
  - Efficient cross-fertilization and technology transfer between space and non space sectors.
  - Development and deployment of innovative SatCom program able to federate public and private R&D effort.
  - Development of breakthrough technologies.
  - Development of innovative satellite enabled services addressing security, emergency and societal challenges.
  - Further strengthening (at global level) of European universities and research centers on SatCom.

# 5 Topic #2: ISI & Standardization

## 5.1 Rationale and Goal

The panel aims at discussing these Standardization aspects at European and worldwide Level, and at identifying proper actions to be performed by the SatCom Community and by Public Institutions in support of a common standardization policy.

The main goal is to identify a link between SatCom R&D and standardization activities and to highlight the importance and role standardization for the SatCom industry players.

## 5.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Leader of the Regulatory & Standardization Working Group

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 5.3 Panelists Profile

A panelist will be invited from each one of the following categories:

- Standardization bodies (ETSI, DVB, IEEE, ITU, etc.)
- Manufacturers
- Service operators and providers
- R&D Institutions
- Public Administrations
- European Commission
- European Space Agency
- Other ETP representatives

The invited panelists from the above categories will be selected on the basis of their involvement in the standardization areas.

## 5.4 Background

Standards are vital for **interoperability** among IT products and services to build a truly digital society, especially now that technology markets are moving fast. Internet is one of the best environments for fostering interoperability, because of its open and heterogeneous architecture, which consists in interconnecting devices, applications, services, data repositories, and different networks.

The European Commission is currently working on reviewing European standardization policies in order to improve and modify the rules of implementation of ICT standards in Europe.

In particular, the following R&D activities, which have been specified in the ISI Strategic Research Agenda (SRA), require a mapping into standardization activities in order to implement interoperability in European standards:

- Link efficiency:
  - To elaborate a reconfigurable physical layer and radio platforms capable for multi-band and multi-user operation.
  - To incorporate dynamic spectrum and radio resource management to achieve excellent quality of service for satellite overlay-backhaul and broadcast networks.
- Air interface harmonization:
  - To harmonize mobile satellite air interface and emerging terrestrial wireless air interface in order to optimize satellite system resource, while ensuring user terminal cost effectiveness.
- Software defined radio:
  - This item covers the capability to reconfigure both the satellites (flexibility) and the terminals.
- Radio Resource Management
  - To develop dynamic Radio Resource Management to optimize the resource allocation over the different networks.
  - To define mechanisms for the QoS provision under fairness constraints.
  - To define efficient methods for aggregation, multiplexing and bandwidth sharing of terrestrial traffic towards satellite networks.
- Call Admission Control Schemes
  - To design Call Admission Control, Scheduling, and Medium Access Control algorithms for the support of multimedia traffic and for the efficient management of radio resources in hybrid networks.
- Evolution towards all-IP integrated networks
  - IP is the basis for convergence of services and networks, satellite shall build upon this protocol to be integrated into heterogeneous networks.
- Integration of satellite into heterogeneous terrestrial-satellite networks
  - Hand-over and roaming procedures between various sub-networks.
  - Advanced general network management platform that will accelerate terrestrial-satellite network operation. Users must be able to acquire access in any of the satellite or terrestrial network while optimizing the service costs in terms of necessary resources. This implies inter-network synchronization in terms of traffic, services, connection management and routing from network to application layer.
  - Location and situation aware protocols design for mobile and fixed satellite access.
- Interworking between heterogeneous networks:
  - To adopt robust, highly efficient, and scalable source coding and trans-coding techniques (voice, audio, and video).
  - To facilitate content rate adaptation to match the available bandwidth of the interworking SatCom networks.
  - To develop tools for applications validation such as:
    - Tele-education
    - Remote access to instruments
    - Efficient Audio/Video Transmission over Satellite

- Interfaces to remote access control and management

# 6 Topic #3: ISI & Future Internet

## 6.1 Rationale and Goal

The panel aims at discussing these Future Internet aspects and at identifying proper actions to be performed by the SatCom Community and by Public Institutions in support of Future Internet objectives and implementation especially in the area of networked media.

The main goal is to assess the role of SatCom with respect to Future Internet evolutions.

## 6.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Vice-Leader of the Markets & SatComs Solutions" Working Group
- Member of the Markets & SatComs Solutions" Working Group

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 6.3 Panelists Profile

A panelist will be invited from each one of the following categories:

- Manufacturers
- Network operators
- Service operators and providers
- R&D Institutions
- Public Administrations
- European Commission, e.g., DG Enterprise
- European Space Agency
- Other ETP representatives

The invited panelists from the above categories will be selected on the basis of their involvement in the Future Internet issues and Next Generation Networks area.

## 6.4 Background

Over the last 30 years, the evolution of the Internet has drastically changed society, plunging it into a new digital era, and offering new paradigms for life, education and social interaction. Today, Internet has become a core communication environment, enabling a very wide variety of applications and services to be globally deployed, not only for business relations but also for social and human interaction. The concept of "computer network" has grown from being a fixed interconnection of terminals, to becoming a cloud of autonomous and diversified processing devices, all able to communicate and to exchange information. Societies are now digital, and human activities are relying more and more on this in all dimensions of our lives, such as health,

transport, knowledge, culture, business, and many more. Internet will be the key feature that will enable free movement of knowledge together with free movement of persons, capital, services and goods.

Technological challenges can be mapped onto a clustered model that embodies the main features of the Future Internet. This model consists in four key pillars (the Internet by and for People, the Internet of Contents and Knowledge, the Internet of Services, and the Internet of Things), and in a common networking infrastructure. By breaking the digital divide, the Future Internet should enable a continuous flow of content among populations to foster free exchanges of ideas, to facilitate everyday life, to allow the creation of any type of business and to break barriers between information producers and information consumers.

The concepts of **Internet by and for People** and of **Internet of Concepts and Knowledge** are embodied in the idea of distributed knowledge that can be easily shared, easily accessible, and dynamically changed. Future Internet shall then provide intelligent methods for information collection, processing, and tagging, to allow users to benefit from this huge amount of available material.

The expression **Internet of Things** refers to a future scenario where all objects will have unique identifiers: not only computers, printers, mobile phones, but literally anything around us, anywhere, at any time, creating a universally addressable continuum. All these objects will then have the capacity to exchange, process and store information creating a world-wide seamless and heterogeneous network, based on standard communication protocols.

The term **Internet of Services** embraces the different ways services are provided and operated over the cloud. Since the network infrastructure is rapidly changing, moving from an end-to-end principle to a more complex clustering of resources, services and applications must be shaped accordingly, in order to better suit this new and highly dynamic configuration.

The **network infrastructure** should then be designed to support and sustain these pillars, providing capacity and performance to the various kinds of advanced services that will be deployed. The main domains of improvement for the network infrastructure must relate to its **functionality** (in terms of accountability, security/privacy/trust, manageability, availability, as well as mobility), and its **architectural properties** (in terms of flexibility, resilience, and routing capabilities).

In the current Internet, there is a need for "**gap filler**", regarding the availability of connectivity for specific areas, such as rural and remote areas, on trains, airplanes, ships etc.

Future Internet shall then allow the design and deployment of **hybrid terrestrial/satellite** communication networks to increase availability in these critical areas. Clearly, the satellite segment is crucial for guaranteeing global seamless coverage, especially in areas where mounting cable infrastructure would be prohibitive in terms of costs. Broadband will then be available in every corner of the globe, overcoming digital divide, and unifying countries and populations providing a common core network infrastructure and allowing services to be accessed by **everyone**, **everywhere**.

# 7 Topic #4: ISI and Emerging Economies

## 7.1 Rationale and Goal

The panel aims at identifying proper actions to be performed by the SatCom Community from a global perspective and, in particular, by Public Institutions in support of emerging economies.

The main goal is to specify the role of SatCom from a global perspective including consideration to the needs of emerging countries and to which needs SatCom should respond.

## 7.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Member of the ISI Steering Council
- Member of International Organization or International Association (like GVF)

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 7.3 Panelist Profile

A panelist will be invited from each one of the following categories:

- Service operators and providers
- European Commission, e.g., DG Enterprise
- European Space Agency
- NGO organization
- United Nations

The invited panelists from the above categories will be selected on the basis of their involvement in the cooperative research between EU and developing countries.

## 7.4 Background

Extending terrestrial network infrastructures with satellite segments will increase coverage, enabling broadband access (mobile phones, Internet access, etc.) to those **developing countries** that nowadays are still not adequately served with Internet access. This can help to create new opportunities for human development.

Successful deployment of these technologies will spur innovation, improvements in daily life, and will provide better quality of life through, for example, more responsive emergency services, telemedicine, e-learning, and more efficient public services.

**Telemedicine** applications will play an increasingly important role in health care and provide tools that are indispensable for home health care, remote patient monitoring, and disease management, that encompasses not only rural health and battlefield care, but nursing home, assisted living facilities, and maritime and aviation applications. Advances in technology including wireless connectivity, mobile devices, and deployment of satellite network segments will give practitioners, medical centers, and hospitals important

new tools for managing patient care, electronic records, and medical billing to ultimately enable patients to have more control of their own well being.

**E-Learning** is training provided using the Internet. E-learning means moving away from the traditional classroom learning experience and into the learner's world. It means that participants can learn at any time and any place around the world. Generally speaking, E-Learning refers to the use of the Internet to deliver learning or training programs. It means the participant can learn without geographical or scheduling barriers. It is learning that relies on the Internet for accessing learning materials and interacting with experts and fellow learners. Improving connectivity in developing countries will enable most populations to benefit from these tools, making culture accessible to anybody.

Thanks to satellite network segments **emergency services** will become more responsive, and more efficient in preventing disasters, or in fast recovery, helping to save human lives and avoiding also potentially serious consequences for the economy of the damaged areas.

# 8 Topic #6: ISI & Rural Developments

## 8.1 Rationale and Goal

The panel aims at discussing future Satellite Broadband access can contribute to the development of rural areas. The SatCom industry roadmap will be presented in order to highlight the current and planned SatCom capabilities in terms of broadband access putting emphasis on the Quality of Service. Some programmatic aspects will be discussed.

## 8.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Avanti Communications and EADS Astrium representatives

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 8.3 Panelists Profile

A panelist will be invited from each one of the following categories:

- Guido Acchioni/EC DG Infso, Digital Agenda: Policy coordination
- SatCom industry
- User group representatives
- Telecom operator representative

## 8.4 Background

It is important to continue to raise awareness about SatCom BB access capability and implementation aspects to the users, the telecom operators and the EC.

# 9 Topic #8: ISI & International Research

## 9.1 Rationale and Goal

The panel aims at discussing possibilities to cooperate with partners beyond Europe, regarding cooperative research at earlier stages of the overall innovation chan. This cooperation will benefit on many aspects, like innovative spectrum usage by SatCom systems in order to promote a worldwide harmonized spectrum and related regulatory framework, adoption of standards at worldwide level, etc.

In particular, the panel should discuss the opportunities and interference issues associated with the implementation of cognitive radio schemes in the context of SatCom systems.

## 9.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Leader of the Regulatory & Standardization Working Group

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

## 9.3 Key note speech

The following keynote speech is proposed:

- L. Bochereau (head) or J. Claxon (Deputy), D.1 unit “International cooperation policy”, Directorate D “International cooperation”, DG Research & Innovation (European Commission)

## 9.4 Panelists Profile

A panelist will be invited from each one of the following categories:

- R&D Institutions
- European Space Agency
- European Commission, e.g., DG Enterprise
- Other ETP representatives

The invited panelists from the above categories and coming from different countries in Europe and other continents, will be selected on the basis of their involvement in the ICT area:

| **Country** | **Candidate Panelist** |
|---|---|
| Europe | CCSR/UniS: Prof. Barry Evans |
| North America | Sirius-XM: Robert Briskman |
| Korea | ETRI: Ho-Jin Lee or Dr Do-Seo Ahn |
| South America | TBD |

| | |
|---|---|
| Japan | TBD |
| Middle east | TBD |
| India | TBD |
| Russia | TBD |

## 9.5 Background

Coordination of research in ICT is already on going on emerging topics such as advanced IMT systems, mobile satellite multimedia services and Future Internet which allows contributions to the emergence of world standards.

We should explore the potential benefits for Europe of fostering coordination of SatCom research at the international level to:

- strengthen the international dimension of the European Research;
- improve the framework conditions for international S&T cooperation on a reciprocity basis;
- promote European technologies in the world.

# 10 Conclusions

This deliverable describes the ISI SatCom event concept for the first year of the project, in terms of objective, scope, format, invited external stakeholders, as defined by WP4 of the FISI project.

During the ISI Steering Council meeting which has been held on June 15, 2011 in Warsaw, Poland, the candidate panelist organizers have been selected as reported in the following Table[1].

| Panel | Topic # | Candidate Panelist Organizer |
|---|---|---|
| **18 October 2011 (afternoon)** | | |
| Opening panel | #0: Opening topic | N. Chuberre (TAS-F), JF Charrier (EADS Astrium) |
| 1 | #1: ISI & EU Security | P. Boutry (EADS Astrium), V. Fogliati (Telespazio) supported by Diego Gimenez (ISDEFE) |
| 2 | #2: ISI & Standardization | J. Sesena (ROSE) |
| **19 October 2011 (morning)** | | |
| 3 | #3: ISI & Future Internet | K. Liolis (Space Hellas), A. Yun (TAS-E) |
| 4 | #4: ISI & Emergency Economies | B. Evans (UniS), J. Sesena (ROSE) |
| 5 | #6: ISI & Rural Development | K. Prescott (Avanti), L. Thomasson (EADS Astrium) |
| 6 | #8: ISI & International Research | J. Sesena (ROSE) |
| **Non-selected topics** | | |
| 1 | #5: ISI & Energy/Environment | TBD |
| 2 | #7: ISI & Network Media | K. Prescott |

Furthermore, an open consultation to invite all ISI members to express their opinion on the most relevant and interesting panels proposed for the 4th SatCom day has been launched at the end of May and will be open until July, 2011.

[1] 90 minutes per panel. 6 panel over 2 half-days; 4 members per panel; overbooking to 5 panelists.

# 11 Annex A – Non-selected Topics

## 11.1 Topic #5: ISI & Energy/Environment

### 11.1.1 Rationale and Goal

The panel aims at discussing energy consumption and environmental issues and at identifying proper actions to be performed by the SatCom Community and by Public Institutions in support of energy aware ICT solutions and networks, and in support of environmental resources monitoring and management.

The main goals are related to how SatCom can contribute to energy saving, how SatCom can support the CO2 emissions and to identify the role that SatCom can play in Smart Grids as well as to define how satellites can contribute to water management, including demand-side management, integrated water resource management frameworks and comprehensive decision support systems.

### 11.1.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Member of the ISI Steering Council

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

### 11.1.3 Panelists Profile

A panelist will be invited from each one of the following categories:

- Large industry and telecom operators
- SMEs developing applications in this field
- Civil construction
- Power Distribution Operator
- Industry offering earth observation by satellite services
- Public Administrations: Municipality administration with responsibilities on environment
- Research centre specialized on environment and monitoring techniques
- European Commission, e.g., DG Agriculture, DG Research, DG Enterprise
- Other ETP/JTI

The invited panelists from the above categories will be selected on the basis of their involvement in energy consumption/environment issues.

### 11.1.4 Background

Satellites are naturally **green**, since they are totally powered by solar energy, and thus they can be considered as key environmental friendly elements to expand network infrastructures.

This is very important nowadays since smart use of technology is crucial to address the challenges facing society like climate change.

The ICT sector plays a key role in improving energy efficient policies:

- ICT offers potential for a shift towards less-resource intensive products and services for **energy savings** in buildings and electricity networks, as well as for more efficient and less energy consuming intelligent transport systems.
- The ICT sector will set targets **to reduce energy use and greenhouse gas emissions** for all processes involved in production, distribution, use and disposal of ICT products and delivery of ICT services.

Cooperation among the ICT industry, other sectors and public authorities is essential to accelerate development and wide-scale roll out of ICT-based solutions for smart grids and meters, near-zero energy buildings and intelligent transport systems. It is essential to empower individuals and organizations with information that will help them reduce their own carbon footprint. The ICT sector will deliver modeling, analysis, monitoring and visualization tools to evaluate the energy performance and emissions of buildings, vehicles, companies, cities, and regions. Smart grids are essential for a shift towards toward a low carbon economy. They will enable active control of transmission and distribution via advanced ICT infrastructure communication and control platforms. For the different grids to work together efficiently and safely, open transmission-distribution interfaces will be needed.

Although there is no standard global definition, the European Technology Platform Smart Grids defines smart grids as *electricity networks that can intelligently integrate the behaviour and actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic and secure electricity supplies.*

Smart Grids do not only supply power but also information and intelligence. The "smartness" is manifested in making **better use of technologies and solutions** to better **plan and run** existing electricity grids, to **intelligently control generation** and to enable **new energy services** and **energy efficiency** improvements.

Smart grids' promise of ubiquitous, real-time information sharing isn't feasible without satellite broadband in the networking infrastructure.

The ideal smart grid communications network requires multiple transport technologies and standards, undoubtedly including terrestrial fixed and wireless broadband, and all coalescing around an IP backbone. However, a terrestrial-only architecture is vulnerable to disasters on the ground, whether natural or man-made, and cannot alone ensure fail-safe operation. To achieve that means employing a true alternate communications path, which only satellite provides. The resulting hybrid terrestrial and satellite network can realize the high reliability and availability demanded across the entire smart grid, including the necessary combination of reach, capacity and bandwidth scalability.

The ideal smart grid architecture will therefore seamlessly blend redundant wire-line, wireless and satellite communications channels to yield the highest possible reliability and availability. Keeping it also affordable means deploying the most cost-effective technology at each site and backing up those that are operationally critical as a minimum, with the overall constraint of having no single points-of-failure.

Satellite networking technology has developed rapidly and now delivers the combination of high performance, availability, and security that can greatly aid smart grid efforts for the utility industry. Indeed, satellite solutions are an essential part of the multi-technology approach required by the utility industry to achieve an end-to-end, smart grid communications infrastructure — one that is reliable, fast, secure, and cost-efficient.

On the other hand, the contribution of SatCom to environmental resources monitoring and management is mainly related to water management, including demand-side management, integrated water resource management frameworks and comprehensive decision support systems.
A new generation of Earth observation satellites could have a key role in the monitoring of natural resources and its protection.
The role of the satellite in this field is related also to the ICT role in establishing sustainable cities, leading to higher environmental performance in urban areas.

## 11.2 Topic #7: ISI & Network Media

### 11.2.1 Rationale and Goal

The panel aims at discussing the evolution of the networked media service context in order to identify trends for satellite systems and possible opportune hybridization of service with broadband.

### 11.2.2 Panel Organizer

The following position is a possible candidate for the Panel organization:

- Avanti communications representatives

The Panel organizer will be in charge of:

- inviting the Panelist;
- identifying the moderator among the invited panelist on the basis of the experience and skills of spur discussion on the Panel topic;
- producing a list of key questions to be addressed by the Moderator to the Panelists;
- producing a list of key questions to be used by selected ISI members in the audience to keep alive the discussion;
- identifying four or five ISI members to be serve as facilitator of the discussion (see previous bullet points).

### 11.2.3 Keynote speech

The following keynote speech is proposed:

- Luis Rosello-Rodriguez, head of D1 unit "Future Networks"
- B. Arroyo Fernández, head of D2 unit "Networked Media Systems" within Directorate D "Converged Networks & Services" of Directorate General Infso

This aims at providing a general view on the evolving networked media context and showing the convergence with broadband access network.

### 11.2.4 Panelists Profile

A panelist will be invited from each one of the following categories:

- Market analyst
- HBBTV
- Content provider
- Broadcaster
- Network operator
- Satellite operator
- SatCom system prime

The invited panelists from the above categories will be selected on the basis of their involvement in the networked media services:

| **Candidate Panelist** | **Topics to be addressed** |
|---|---|
| IDATE | To report about market trends |
| IRT | To give an overview of the trends in standards on distribution networks |
| TF1, BBC | To highlight the impacts on the content/service provisioning business |

| | |
|---|---|
| Sky | To highlight the impacts on the broadcasting business |
| Orange, TIM | To highlight the impact on broadband access network |
| Avanti | To highlight the impacts on the satellite business |
| TAS | To promote innovative SatCom systems in this context |

### 11.2.5 Background

According to IDATE, Video consumption has evolved from a passive mass consumption based on broadcasting, to a more personalized and non-linear way of watching video programs. Pre-recorded video contents are becoming increasingly popular and services such as VOD, catch-up TV and PVR functionalities are now developing significantly. This shift in usages is allowed by an IP migration and a dematerialization of all types of contents.

In a context of multitasking spreading, especially among young people, video contents need to integrate more and more interactivity. Viewers like to access additional information regarding the TV program they are watching, information which is available on the Internet, and to interact with their community of friends about this program. Moreover, the trend is to implement applications and widgets in order to facilitate the transfer of video contents between the different terminals of the digital home.

Video contents represent the main part of IP traffic (60% of the Internet traffic is generated by consumers' video usages) and according to Cisco's forecasts, this trend should continue as the annual growth rate of online video should be 70% between 2008 and 2013. The increasing number of video contents providers and the development of HD video programs, and 3D soon, are among the main explanations.

**Appendix: FISI internal document control**

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|---|---|
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| **Approval:** | **N. Chuberre (TAS-F)** |
| **Dissemination level:** | Public |
| **Keywords:** | SatCom, Security, Standardization, Future Internet, Emerging Economies, Rural Development, International Research. |
| **Contractual delivery date** | 15th December 2010 |
| **Submission date** | 04thJuly 2011 |

| **Document history** | | |
|---|---|---|
| Version | Date | Comment |
| 0.1 | 28th January 2011 | |
| 0.4 | 23th March2011 | Integration of contributions from Nicolas Chuberre, Julian Sesena, Antonio Alfaro. |
| 0.5 | 25th March2011 | Modification of Panels according to indications of the ISI SC. |
| 0.6 | 04thJuly 2011 | Modification of Panels according to final comments from the ISI SC. |
| 1.0 | 12th September 2011 | Change of version to 1.0 for uploading on the Website |