



The Integral Satcom Initiative



**Brussels, January 31th, 2008
Euro-Africa ICT Meeting**

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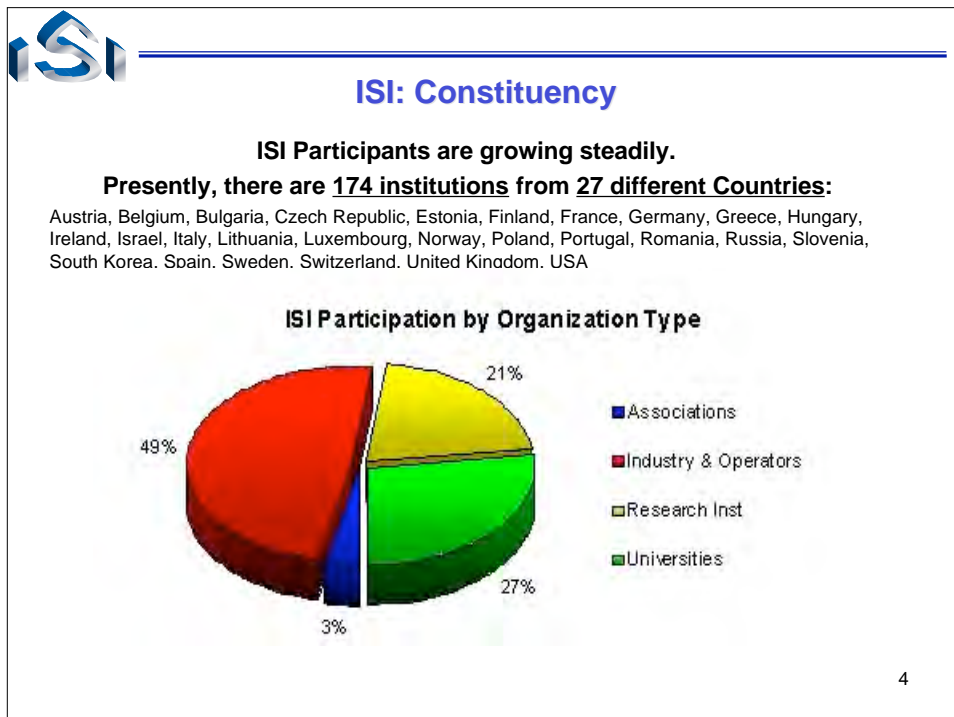
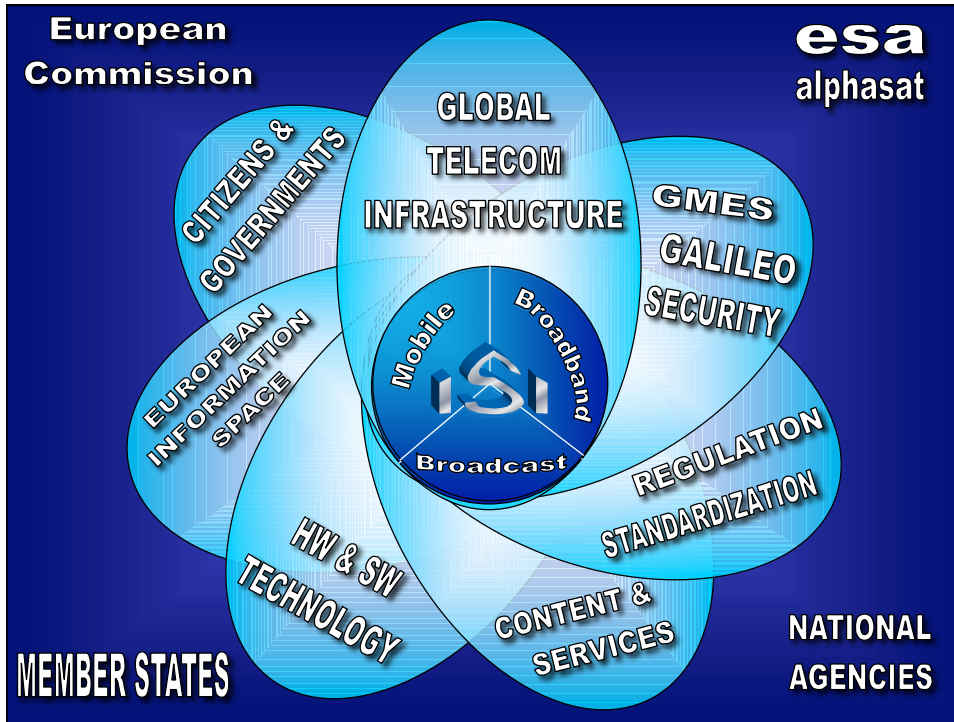


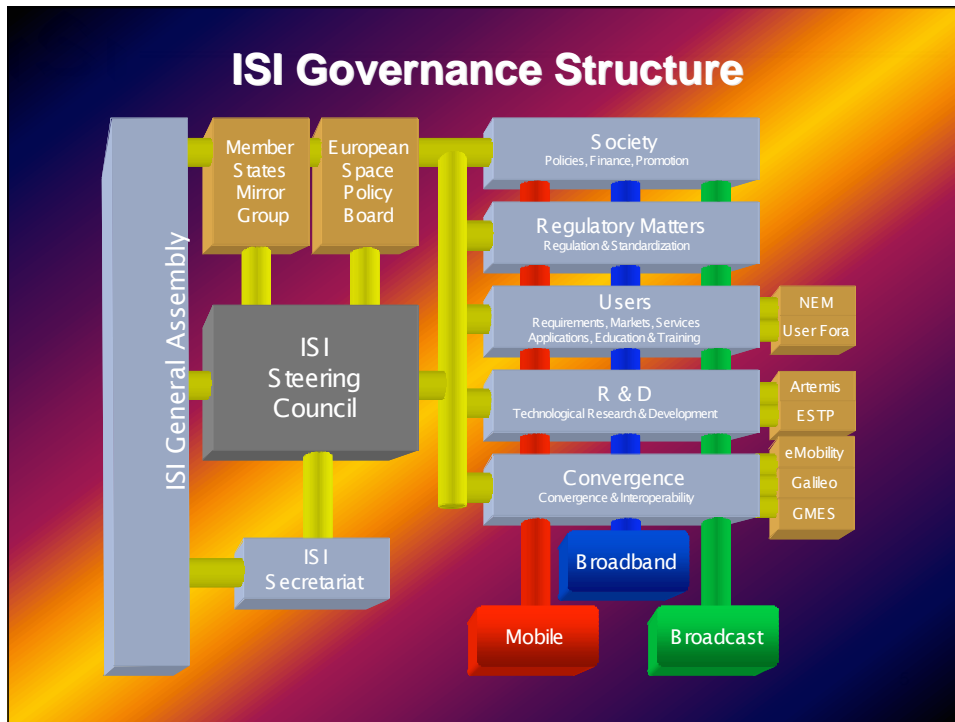
ISI Mission

**The Integral SATCOM Initiative
webpage: www.isi-initiative.eu.org**

ISI brings together all aspects related to satellite communications, including mobile, broadband, and broadcasting applications, security systems and applications, and the integration of data communications with navigation, Earth observation and Air Traffic Management systems, both for commercial and institutional/governmental applications.

ISI is determined to contribute to several EU and ESA policies, in sectors such as ICT, Space, Security, Transport, Development, and Environment.





ISI Key Concepts

- ❑ **Convergence: opportunities and threats**
- ❑ **ESP 3 pillars: need for a healthy industry**
 - **Competitive Industry & Strategic Institutional assets**
- ❑ **International approach is both natural and necessary**
- ❑ **Open standards are the key to expanded markets**
- ❑ **Harmonized regulatory framework**
- ❑ **Challenges: architectural, technical, economical**
- ❑ **Focused R&D: innovation is a must**
- ❑ **Investments: public and private, FP7, ARTES, National programs**

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Challenges for Europe

- Europe is facing difficult challenges: we must unify, align, act
- Growth, jobs, and competitiveness
- Building the Knowledge Society: the Lisbon strategy
- Inclusion into the Knowledge Society
- Security and public protection
- Multi-fold convergence in the ICT world
- Exploitation of Space: European Space Policy
- Environmental and Development policies

***Satcoms contribution:
a unique point of contact over Europe!***

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FP7 R&D in Africa

What benefits will FP7 R&D Funding for Africa have for European?

- Designing and deploying hybrid terrestrial/satellite systems and other new satellite architectures to reduce transmission costs, increase efficiency and flexibility and offer customer-friendly one-stop-shop hybrid solutions involving a large number of European/African industrial players
- Developing and deploying novel kinds of services to better exploit Satellite Telecommunications (satcom) capabilities
- Reducing the time to market for commercial applications thus increasing competition of the European industry
- Develop new markets for the European industries by aggregating demand beyond Europe
- Fostering dissemination of European satellite solutions outside of Europe

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Key Messages to Member States

- **European Satcoms have strategic value and yet untapped potential**
 - **Satcoms drive innovation**
- **Why Member States should invest in SatComs R&D:**
 - **Multiple uses of a single technology**
 - Commercial & Institutional
 - **Multiple policies can benefit**
 - ICT, Space, Security, Transport, Health, Capacity Building, Broadband, Internet Access, Development, and Business Environment.
 - **Satcoms are trans-national in nature: a European strategy is a must**
 - **Inclusion of all Countries is readily achievable**
 - **Integration into the global ICT infrastructure is a must**
 - **Harmonized regulation & standardization is necessary**

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ISI Documents

- **All can be downloaded from: www.isi-initiative.eu.org**
- **ISI Vision Statement**
 - **approved**
 - **Signed by CEOs, Presidents, Directors, Rectors**
- **ISI Strategic Vision Document**
 - **approved**
- **ISI Strategic Research Agenda**
 - **Version 1.1 released**
- **All documents available on the ISI website**
 - **www.isi-initiative.eu.org**

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Africa's recurrent shortage of broadband service



Which progress in coverage?

In 2004, the 50 countries of Africa had fewer internet users than France. In 2008, still only about ten countries have an average connection rate of more than 5 bits per capita.

Stalled pricing schemes for Internet access:

- In cities: 25% more expensive than in Europe
- In rural areas across Africa:
1000 to 400 times more than in Europe

➡ Progress in ICT infrastructure deployment is too slow for having a sufficient impact on the development of the continent.

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Infrastructure Deployment in Africa

The NEPAD ICT Broadband Infrastructure Network for Eastern and Southern Africa



Broadband cable infrastructures in Africa cover **less than half** the continent.

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Internet Monthly Fees in Africa

•Internet Monthly fees:

Service plan	Downlink bandwidth	Uplink bandwidth	Internet bandwidth	Monthly fee Latin America	Monthly fee Africa
128/64Kbps	8,000 bps	3,000 bps	8,000 bps	N/A	96€
256/64Kbps	15,000 bps	3,000 bps	15,000 bps	153€	160€
512/128Kbps	25,000 bps	5,000 bps	25,000 bps	255€	267€
1024/256Kbps	50,000 bps	10,000 bps	50,000 bps	510€	534€

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ICT Satellite Infrastructure in Africa Costs aspects

Internet Access & VoIP considered most promising services in Africa due to:

- ❑ poor terrestrial coverage
- ❑ high demand for those services
- ❑ local service providers, improving VoIP with appropriate QoS

WiFi and Wimax technologies could be combined with two-way satellite broadband such as Astra2Connect or D-Star. to provide **broadband** services. Both technologies are interoperable with DVB-RCS and they can be used to deploy broadband services to a wider profile of users, without the need to install a DVB-RCS per final user.

For point-to-multi-point applications – including distance education, tele-health and rural communications – **satellite communications have been proven to be more cost effective** by, among others, the African VSAT industry with the arrival of low cost 2-way, broadband satellite systems, satellite can also be as efficient as terrestrial broadband services

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Requirements for Africa's development

Building Africa's information and communication sector requires developing and improving four major components:

- Institutional framework and legal, regulatory and management mechanisms;
- Human resources;
- Information resources (info-structure);
- Technological resources (infrastructure)

Among the major challenges of development in Africa are:

- Health
- Education
- Employment
- Business
- Agriculture

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Requirements for Africa's development

Some Examples

Health

- Linking health centres, delivery services and medical transport to patients;
- Improving access to skilled diagnosis through tele-medicine;
- Improving distribution and reducing costs of medical supplies.

• **Education and research**

- Connecting schools, universities and research centres to national and international distance education facilities, national and international databases, libraries, research laboratories and computing facilities;
- Promoting and supporting collaboration among teachers and researchers;
- Extending the reach of educational facilities in informal learning, especially to community level.

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ICT Infrastructure & Deployment Options for Africa

- At the last « Connect Africa » summit in October 2007 in Kigali, African leaders welcomed the benefits of ICT for their societies, in terms of Agriculture, Health, and Education while **denouncing the lack of critical investments and measures.**

Namely they strongly advocated:

- local know-how and resources to be strengthened for building the ICT infrastructure, perceived as the major tool which will enable the African continent to lock on to the world's information society fast-track

Via:

- Stronger cohesion of ICT strategies of the African governments
- larger investments in ICT by the private sector
- More productive relationships between government and business for a faster realisation of tangible results
- More business-friendly environments created by governments, for example reducing taxes on ICT tools and reducing licensing fees

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Research Proposals of ISI

- **Pursue and deploy integrated solutions for NEPAD e-schools, the project should cover the following needs**
- **Hybrid satellite and terrestrial point-to-point access**
- Added-value features of satellites in hybrid networks:
 - satellite offers **full coverage**. This reduces the cost of the terrestrial infrastructure for services which need to be available everywhere, including mobile and transport applications. In the later case, no other solutions are able to ensure service continuity over maritime and air routes.
 - A new infrastructure in the form of a point of presence fully equipped with a hybrid system could enabling access to small remote villages with less than 200 inhabitants
 - When deploying fixed and mobile telecommunication networks, the satellite backhauling enables remote and low density areas to be connected competitively.

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3. Low-Cost ICT Terminals & Services

□ In order to offer low cost communications to remote communities, new proposals of 'Triple Play' satellite services are being introduced



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3.1 Low-Cost Satellites and ICT:

□ The provision of low cost satellite communication services in developing countries is becoming a reality.

□ Low service cost is possible if each actors in the service Value Chain optimally contribute to this objective. Main actors in the value chain are satellite operators, telecom operators, solution providers and service providers.

□ Unfortunately, cellular coverage can be very much limited in Africa & ACP countries, and the cellular service is therefore not available to most remote communities. Fixed public telephone and Internet services are often also not available for these communities.

□ In these circumstances, satellite is the sole mean to offer communications to remote communities.

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Research Proposals of ISI

3.2 Low Cost = Requires further research

Connectivity to open source low-cost student laptops and distant classrooms

Axes of Research:

- Turbo Codes/Forward Error Correction ,Open Source alternatives
- Low Cost CDNs using satellites
- Integration into low cost community networks
- Low cost Satellite terminals
- Power consumption
- Environmental issues

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Research proposals for ISI

4. Pursue Combined Services between various space technologies such as Earth Observation, Telecommunications and navigation

➤ AFSAGA & Converged EO/SatCom Navigation project in Africa- 6thFP:

• AFSAGA is a project funded and supported by the European Commission through the Sixth EU Framework Programme.

• The purpose of AFSAGA is to analyze the potential applications available from Galileo and satellite communications in South Africa as well as the Southern African Development Community (SADC) region.

• Combined Satellite based Navigation with satellite communication in location-based applications, project involving Thales Alenia Space, CSIR, SAC, and South Africa.

• CSIR is the largest community and industry directed scientific and technological research, development and implementation organization in Africa. As partner in this project, the CSIR allows for access to the largest possible user community over a vast area of applications.

• The Satellite Applications Centre (SAC) within the CSIR will directly contribute to this project. SAC is active in space in the areas of TT&C, communication and earth observation.

• http://www.afsaga.org/pdfs/presentation_afsaga03_aug2007.pdf)

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Research Proposals of ISI

5. Specific work for harmonizing the legal framework on ICT and earning more competition:

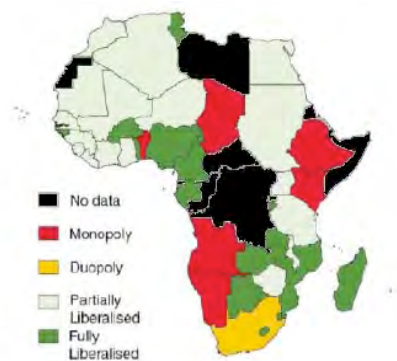
➤ See next slides on regulatory status and competition status

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VSAT Licensing Regulatory Status over Africa

The African continent is opening up to ICT services. Discussions about harmonizing the legal framework on ICT in general are taking place in various workshops and meetings across Africa. (Economic Commission Africa, ECOWAS, UEMOA).

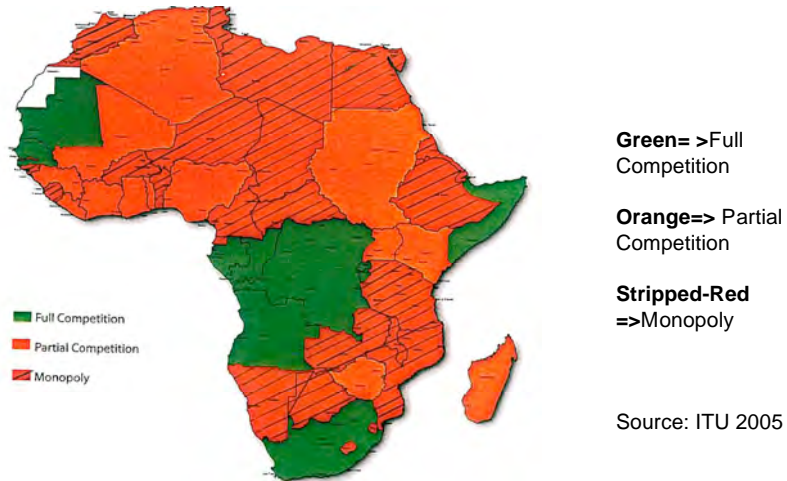


Source:
ITU Trends in
Telecommunication
Reform 2003

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ICT Competition Status in Africa



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ICT Competition Status in Africa

- From the map on the previous slide we can see that in 2005, only **half of Africa is fully or partially liberalized**
- Although this trend is growing thanks to measure like the **KIGALI Protocol**, **it is still a problem:**
 - **High customs costs**
 - **Lack of competition**
 - **Rules preventing direct broadcasting of local contents etc;**
 - **There is a need to introduce this concern in the 7th Framework Programme possibly in the form of a SSA**

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Conclusions

- Satellite actors can bring a bigger variety of actors including the service providers essential to develop the research there where deployment of innovative services is needed
- Deployment of low-cost technologies require further integration and research; among other the issue of power supply needs to be addressed
- The process of Regulatory changes needs to be further pushed, more native entities need to support it such as the African Union
- Pursue Combined Services between various space technologies such as Earth Observation, Telecommunications and navigation
- Satellite should be considered as thorough infrastructure, which can support cross-horizontal way research projects and applications in FP7, reaching beyond the sole cable infrastructures that are long to deploy and more costly not only to deploy but also afterwards in terms of service fees billed to the citizens