



Institutional Telecommunications: View and Programs of the Italian Space Agency

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EmerCom, Spazio & Sicurezza

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ASI Strategic Approach

- ✓ The Italian Space Agency adopted an application oriented strategic approach (reflected in the 2003-2005 National Space Plan)
- ✓ Strategy is focused on the *applications* which space programmes offer, not in the space Programme themselves
- ✓ ASI activities are categorized accordingly in technological products (application enablers) and application products

In pursuing its application-oriented approach, ASI looks at the international cooperation and public/private partnership as valuable means for improving the effectiveness of its activity

ASI Strategic Objectives

✓ Public interest

- Promote and develop research and innovation related to services of public interest
- Promote the development of a growing Italian role in the service international market

✓ Scientific excellence

- Strengthen and broaden the national scientific base aiming at the excellence of various disciplines
- Promote the creation of centers of excellence in order to contribute to the European Network of Centers
- Support innovation through the integration of multidisciplinary competencies

✓ Technological excellence and industrial competitiveness

- Support sustainable competitiveness for national enterprises
- Develop highly innovative technologies
- Promote spin-off activities and technological transfer

✓ Broaden and consolidate international cooperation on selective basis



Italy experience in satellite TLC

- The Italian space sector developed an internationally recognised excellence in space based Communications, since its beginning
- Successful pioneer experiences in Ka-band missions and innovative technology

- Italsat 1
- Italsat 2
- On-board processing
- Artemis (data relay)

Lesson learned: user requirements/ applications should drive planning and design of TLC missions to avoid underutilisation of valuable infrastructure

- ASI continues to promote TLC technology:
 - Funding in ESA (Artes programme) of development of innovative payload focused on consumer applications
 - Funding at national level of Ka-band technological devel.



The ASI programmes on TLC applications

On-going Application programmes

- Institutional Emergency TLC for Institutional Users
- Telemedicine
- Teleducation

Currently in design phase (2003- end 2004), fully funded by ASI

Application Programmes to be started (under evaluation)

- e-Government
- TLC/NAV/Earth Observation Integrated applications
- TLC Services for Air Traffic Management Application



ASI project on Institutional TLC for Emergency and security

Objective of the current design phase

Detailed definition of an application programme for
Institutional TLC application for emergency and security
based on space enhanced technologies

Analysis Focus on:

- mobile applications,
- operational scenarios and interoperability among systems and applications,
- utilisation of existing satellite systems and needs for enhanced satellite infrastructure.

Next phases

ASI roadmap includes pilot project to be stated after
consolidation of results of parallel studies



ASI project on Telemedicine applications

Objective of the current design phase

Detailed definition of an application programme for
Telemedicine based on space enhanced technologies

Analysis Focus on:

- mobile applications, emergency management
- Integrated and centralised management
- Teleconsulting; Comms disadvantaged areas
- Teleconsulting of existing satellite systems and needs for enhanced satellite infrastructure
- Road map for enabling technologies

Next phases

ASI roadmap includes pilot projects to be stated after
consolidation of results of parallel studies

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ASI project on Teleducation applications

Objective of the current design phase

Detailed definition of an application programme for
Telemedicine based on space enhanced technologies

Analysis Focus on:

- Applications and market opportunities
- Operations scenarios
- utilisation of existing satellite systems and needs for enhanced satellite infrastructure; road map for enabling technologies

Next phases

ASI roadmap includes pilot projects to be stated after
consolidation of results of parallel studies

Objectives for the INFO Society

Implementation lines for the strategic objective of developing the INFO society in Italy, for which the public administration can play a *stimulation* or *actual engine* role:

- Development of wide band network infrastructure
- Development of wide band innovative services
- Enhancement of informatics culture in the schools
- Promotion of the electronic commerce
- Deployment or enhancement of the Public Administration informatics systems

The Digital Divide Problem

- The availability of wideband infrastructure and services is regarded as a pre-condition for the development of the society in incoming years
- An advance development of the terrestrial network for wide band services is already experienced in Italy
- Focus on actual or potential (i.e. deriving from a non equilibrate geographical grown of terrestrial services) DD problems is in the following areas:
 - TLC in rural zones (e.g. today 30% of Italian population cannot access DSL services)
 - Digital TV broadcasting in low density areas (Italy started this year digital TV via terrestrial distribution which involve the upgrading of the terrestrial network)
 - Public Administration offices and related connections with the citizens

The satellite solution

- Satellite solution is largely recognised as effective way to mitigate the digital divide problem as it offer a immediate availability of wide coverage of TLC services
- Satellite role is not to act as commercial competitor with terrestrial network, but offer specific advantages for social problem solving, according to a suitable integration with the terrestrial resources
- Institutional focus on solution to enhance the Public Administration (according to specific objective of the Italian Govern) with the provision of a dedicate wide band infrastructure including a new satellite TLC mission
- According to the above evolution, ASI roadmaps for future activities currently relay on a new Ka-band mission.
- ASI role for a new mission should focus on technological innovation



New TLC satellite mission: selected items

Current assessment of public demand for applications:

- e-government,
- Centralised DB of the Public Administrations and provision of citizen interface,
- Internet and multimedia applications,
- Telemedicine and Tele-education,
- High Definition Interactive TV,
- Dedicated reliable Comms for Security and Civil Protection

Application oriented approach should apply

Key technology developments could take place in ESA

Effective federation of the public demand and its dimension
key point for the initiative



Other ASI applications programme related to Security from Space (1)

Galileo

Participation as major contributor (with F, D and UK) to ESA optional programme

On-Going and Approved Application Projects:

- ✓ Aviation Transportation Support
 - Support En-route Air traffic management
 - Monitor & Control Ground Traffic Movement at Airport
- ✓ Maritime Transportation Support
 - Vessel traffic mgnt / Support to national programme Sea Highway
- ✓ Hazardous Goods Transportation Management Support:
 - Routine (knowledge/prevention) and Emergency management

Currently in design phase (2003- end 2004) fully funded by ASI; three years pre-ops planned

Application Projects to be started (under evaluation):

- ✓ Support to disabled citizens
- ✓ Support to vehicular traffic management
- ✓ Support to citizens and territory safety



Other ASI applications programme related to Security from Space (2)

Cosmo-SkyMed

Remote Sensing Dual programme based on a constellation of 4 SAR satellites (X-band) providing data with unprecedented quality

GMES

EU ed ESA joint initiative for provision, processing and use of data from global monitoring in support of environmental control and security. Operative from 2008.

Disaster Management International Project

Project for Risk Management and Emergency Support in Natural Disasters using Space Satellite Systems. Project developed in OECD from OECD support and lead by Italy. A workshop is planned for mid 2005 in Italy

Other programmes

- Hyperspectral mission
- Radio-occultation mission