# How innovative space-based applications contribute to economic growth

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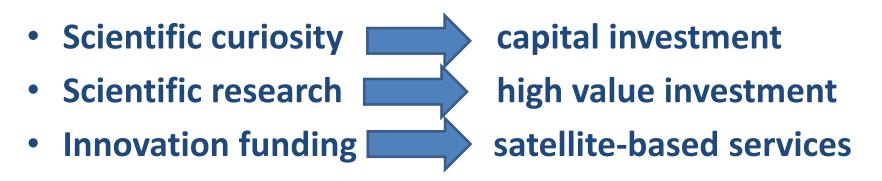
#### **ARTES Applications Workshop, Rome, 18 April 2013**

#### Government attitudes

e.g. UK Chancellor of the Exchequer:

"Space is transitioning from science endeavours into a capability that impacts our everyday lives."

Mantra = "Stimulation"



### Space = Significant Market Impact

- The share of commercial sales and exports in the European total space turnover has grown from 28% in 1991 to 45% in 2010.
- Europe's share in the worldwide commercial telecom market has grown in the past decade from 19% to 33%.

#### • €450bn = global space market by 2030.

### **Growth Requirements**

- ESA procurement less 'equitable' and more 'free competitive bidding'
- Competitive bidding open to wider range of companies, including SMEs
- Public/Private Partnerships and more access to debt/equity markets
- Industry involvement in platform design and data requirements.

### Space activity growth generators

- Skills and Qualifications key to 'smart' industry success
- Public engagement/Inspirational projects provide support
- Scientific excellence & Superfast computing for big data
- E-infrastructure and Critical National Infrastructure
- Integration of space and terrestrial systems and data
- Instrumentation niches; Enabling technologies
- Disruptive technology turns non-users into users
- Innovative solutions attract new users

# Data creative solutions

- Global Navigation Satellite Systems e.g. Galileo provide pinpoint locations of people or things. Geo-loco data correlation and analysis is the basis of a huge growth market in applications.
- Big data services and technology market will grow in value from \$3.2 billion in 2010 to \$47 billion by 2017. (Wikibon)
- Companies that effectively create and implement big data strategies stand to gain in productivity and a competitive advantage.
- This is the ultimate 'Internet of Things' gathering data from space to help make sense of climate, weather, agriculture, transport, urban planning, healthcare, pollution and natural disasters.

# Integrated Applications (IAP)

Annual IAP budget from Member States has doubled, with the UK and Italy as the largest contributors.

#### IAP =

- combination of different space elements (like Satellite-Telecommunications, Earth Observation and Navigation, as well as Human Spaceflight technologies)
- with terrestrial systems where relevant
- creates capabilities that are greater than the sum of their parts.

#### **Objectives of the IAP:**

- expansion of the scope of space activity
- new user communities and platforms identify new apps
- operational services more innovative, effective, resilient and commercially viable than terrestrial alternatives alone.

# Integrated Applications (2)

- Emerging markets: Offshore Renewable Energy; Electricity Networks/Smart Grids; Insurance, Reinsurance & Loss Adjustment; Measurement & Management of Carbon Emissions.
- IAP's impact not from the relatively modest budget but its outreach. IAP's 'Ambassadors' target non-space users.
- IAP 50% co-funding approach not only requires matched funding from industry, but can leverage 3rd party funding from new players outside the space industry.
- ESA is enlarging its domain of action, from development tasks to maximising the exploitation of the tools and technology/service platforms it has created and will launch.

# Integrated Applications (3)

- Studies on the economic multiplier of investments in the space industry indicate a range from 1.4 to 19. (Euroconsult)
- More evidence required on growth impact of space services or applications
- An integrated and international approach vital
- Develop end-to-end solutions that meet the needs of real users, who can be turned into paying customers.

#### • IAP and ARTES-APPS can have a big impact.

### Leveraging Impact

- Emphasis on collaboration between upstream/downstream companies to ensure future missions deliver data with significant economic growth potential
- Encouragement of accuracy, effective flow and intelligent use of data through common standards for operational data transmission
- Improved cost/efficiency of access to space and innovation

   e.g. deployment of TechDemoSat-1 as a satellite platform for
   'in-orbit test facilities' for innovative payloads and
   software.

#### Integrating Space Data Creates Value

