How innovative space-based applications contribute to economic growth

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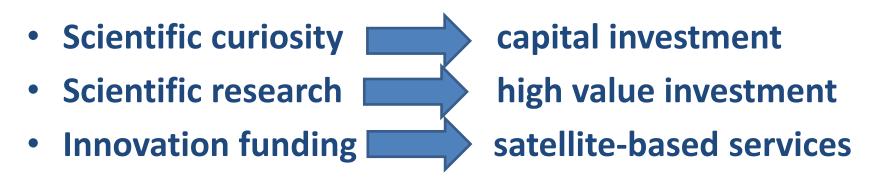
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Government attitudes

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

