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Part 2: The Industry

Earth Observation Value-Chain is Taking Shape

Competition will drive vertical integration

- Earth observation value-chain is becoming less easy to define
- Commercial operators' expansion of services places pressure downstream
- Commercialization of government programs further alters the landscape

Twofold the Number of Satellites to be Launched Over Next 10 years

Earth observation manufacturing market value to total $19.3 billion over next 10 years

- Lower manufacturing costs boost the number of satellites
- Regional manufacturers supply governmental programs while emergent countries create an export market

Meteorology missions will double in units and triple in manufacturing values over the next decade

- Meteorology missions remain the domain of the established space program
- North America will remain the first region for meteorology satellites manufacturing revenues

Leading space primes are associated with established Earth observation programs

- 7 companies compete in the US EO government and commercial market
- European space primes look towards the export market
- Asian and Russian markets serve local requirements

New companies enter manufacturing market through development of local capabilities in emerging countries

- Emerging Earth observation agencies gaining experience through technology transfer
- Giving rise to new players in the satellite manufacturing market

Launch Market Benefits From Growing Demand for EO Satellites

Launch services market is forecast to almost double in the next decade

More export opportunities in LEO driven by emerging Earth observation programs

Commercial Sector is Expanding But Still Relies on Government Support

Commercial satellites increased markedly over the last two years

- Government custom remains critical

Emphasis on the timely delivery of high resolution, accurate data

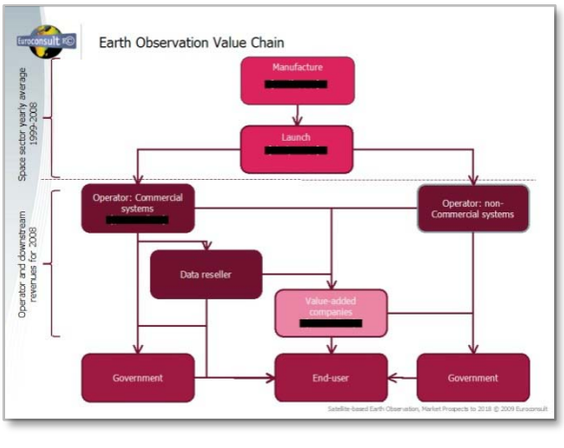
- Ground station networks reduces data delivery times
- Data distribution offers a further level within the value-chain
- Further mechanisms for data delivery look towards the Web
- Parallels between commercial operators

Profiles of commercial operators

- DigitalGlobe the global leader in terms of satellite capacity and revenues
- SPOT Image confirms next two satellites funded by Astrium Services
- Infoterra look towards a succession of radar satellites
- GeoEye's revenues hit by the delay of GeoEye-1
- CSA hand over operation of Radarsat-2 to MDA
- Imagesat targeting government markets for intelligence gathering
- Reapideye launch the first commercial EO constellation
- DeimoSat to be integrated into the DMC

Emerging commercial operators focus on constellations

- 4C Controls form strategic alliance with e-GEOS
- Iridium NEXT potential to host payloads
- E-CORCE – '1 earth, 1 metre, 1 week"



The Commercial Operators' Financial Model

Assumptions for developing a model for commercial EO satellites

- Capex focus on infrastructure, manufacturing and insurance costs

Multiple ways to generate commercial revenues

- Revenues are generated through commercial sales and the anchor tenant

Discounted cash flow model for an EO satellite

- Potential factors impacting the commercial model

Increased Data Supply Should Aid Services Development

The downstream industry is experiencing modest growth

- Government first area for data and value-adding
- Commercial services have struggled to emerge
- Operational satellites' data allow downstream to build services

Operators starting to encroach on the services sector

Earth Observation a Priority Area for Government Space Programs

Climate change draws the main agencies' EO funding

- NASA's Earth science program revived, though Landsat data-gap still a concern
- Continued investment required for ESA's Earth Explorers and GMES
- JAXA awaits full approval for GCOM
- China has three civilian projects under development
- Resurs satellites are the backbone of the Russian Earth observation system
- Canadian radar program to continue with Radarsat constellation

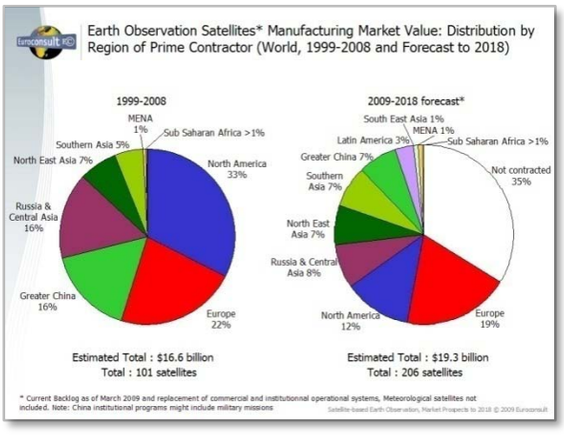
Programs look towards building capacity and commercialization

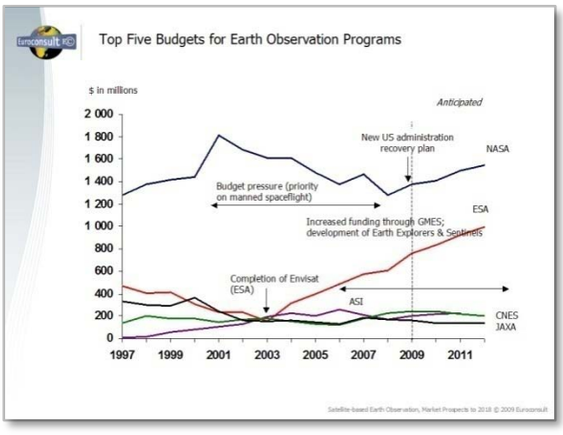
- India's thematic satellite series to continue to grow
- South Korea is quickly acquiring satellite capacity through the Kompsat series
- Argentina and Brazil build on satellite capacity

Numerous emerging countries look to develop Earth observation capacity

Meteorology programs the domain of technology mature countries

- NOAA's budget has doubled over the last 10 years and is expected to remain high
- Eumetsat's budget expected to rise with MTG
- China, India and Japan have established programs, Russia looks to revive its activity





Cost Sharing as a Driver for Dual-Use System Development

The emergence of the dual-use systems in Europe

- E-GEOS to commercialize COSMO-Skymed
- SPOT Image to commercialize Pleiades
- Spain acquires dual-use capabilities through SEOSAT

Increasing European missions call for greater coordination

- European nations commit to MUSIS; EDA takes key role

Low-Cost Data Solutions Can Benefit Services

Governments distributing data increases the number of commercial data sources

- Growing number of governments offering low-cost solutions

Data accuracy is the key advantage of the commercially operated systems

Low-cost data spurns usage and services development

- Landsat data becomes freely available; usage increases considerably

Numerous EO programs with the potential to commercialize

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❑ EO Satellites - Manufacturing Market Value: Distribution by Type of Operator (1999-2008, Forecast to 2018)	❑ LEO EO and Meteorology Satellites Launch Services Market Distribution (1999-2008, Forecast to 2018)
❑ EO Satellites Manufacturing Market Value: Distribution by Region of Prime Contractor (1999-2008, Forecast to 2018)	❑ Top Five Budgets for EO Programs
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❑ Meteorology Satellites – Manufacturing Market Value: Distribution by Region of Prime Contractor (1999-2008, Forecast to 2018)	❑ Accumulative Cash Flow and Break-even for EO Commercial Satellite Case-study Model
❑ Meteorology Satellites – Distribution by Prime Contractor (1999-2018, Forecast to 2018)	❑ Commercially Operated Satellites: Launched to 2008, Planned/Anticipated: 2009-2018
	❑ Main Government Operated Satellites with Commercial Data: Launched to 2008, Planned/Anticipated: 2009-2018

Part 3: Application Areas & Regional Demand for Earth Observation

Multiple Sectors Require Earth Observation Data

Data demand extends from science research to military

- Different sensors different jobs

Environment Monitoring is the First Application for Data Usage

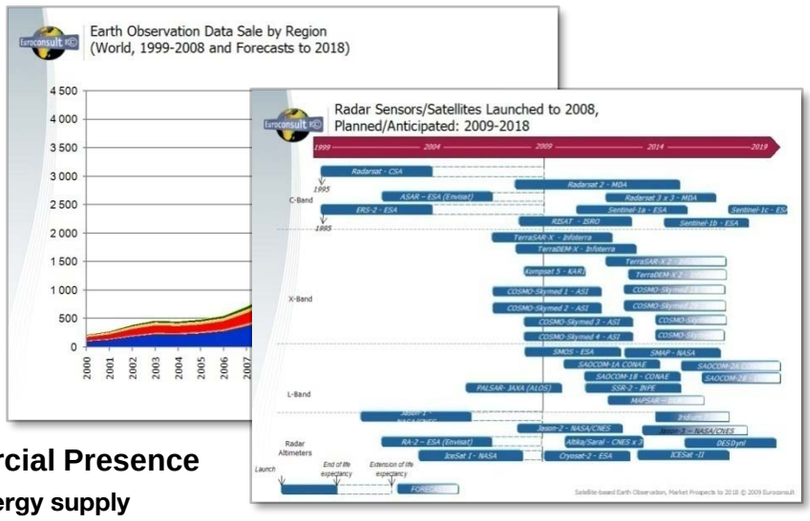
Specific government environment missions supply data to user community

- Government and research institutes are the primary data users
- Data targets specific climate parameters for scientific research
- Open data share and free access to environment data is encouraged
- Environment operation services look to develop

Defense and Security the First Area for Commercial Data

Defense and security represents 62% of commercial data revenues

- Users are both civilian and military government departments
- Data focuses on high-resolution, high-accuracy optical and radar
- Future demand from data export
- Straight to end-user data has not benefitted services



Energy Sector Retains a Strong Commercial Presence

Growth driven by increasing demands on energy supply

- Energy primes are long-time users of Earth observation solutions
- Data requirements from medium resolution archive to commercial
- Commercial data opportunities in site planning and monitoring
- Services will benefit from low-cost data solutions

Satellites More Capable to Monitor Resources at Global and Local Levels

Emerging government systems focus on resources management

- Users are primarily government departments
- Landsat-type data can fill numerous objectives
- Data and services drivers represent different profiles
- Services industry will benefit from increased supply of operational data

Maritime Represents a Key Sector for Operational Radar Data

Increasing trade and new sea routes will drive the demand for data

- Users primarily government with emerging commercial sector aided by the oil and gas industry
- Maritime applications becoming operational
- Increasing supply of operational radar systems to meet demand
- Services taking hold within government agencies

Disaster Management Focuses on Responsiveness of Data Delivery

High geoinformation requirements for all aspects of the Disaster Cycle

- End users range from local to international government organizations
- Satellite data compliments other geoinformation systems
- Data supplied freely to manage disaster events
- Services are supplied on a case-by-case basis

Consumer Services Market is Expanding Quickly

Services have widened from virtual globes to location-based technology

- Users are individuals and businesses requiring geoinformation
- Data required is primarily up-to-date high-resolution
- Demand will grow through utilization of Earth observation data in mobile devices

Demand for Commercial Data Displays Strong Variation by Region

North America and Europe are the key markets for commercial data

- Defense is the primary growth application across most regions

North America represents 52% of the commercial data market

- Defense and Security to remain the first area for data sale

Europe commercial data sale totaled $230 million in 2008

- Future demand will be hampered by increasing government high-resolution systems

Latin America displays strong growth potential

- Emerging economies and high demand on energy and resources provide growth opportunities

Africa represents the least mature regional market

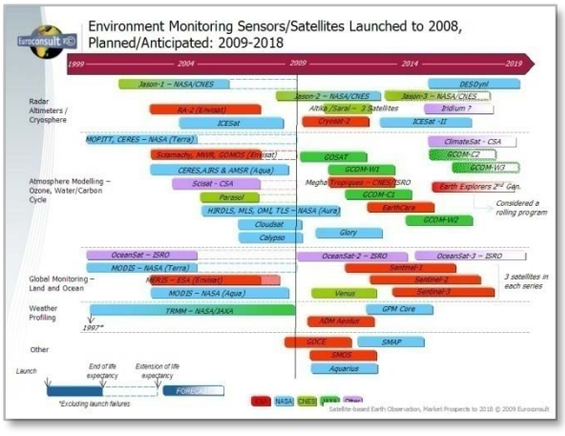
- Data cost is an issue for future demand

Middle-East market growth estimated 19% CAGR over next 10 years

- Energy, defense and security are key drivers for geoinformation

Asian countries have high demand for data across application areas

- Commercial data must compete with fast developing regional programs



Full Page Graphs & Tables – Application Areas & Regional Demand for Earth Observation	
❑ Radar Sensors/Satellites Launched to 2008, Planned/Anticipated: 2009-2018	❑ Environment Monitoring Sensors/Satellites Launched to 2008, Planned/Anticipated: 2009-2018
❑ Main Non-Classified Defense and Dual-Use Satellites Launched to 2008, Planned/Anticipated: 2009-2018	❑ Emerging EO Program Satellites Launched to 2008, Planned/Anticipated: 2009-2018
❑ Global Monitoring of Environment and Security (GMES) Timeline	❑ EO Data Sale by Region (1999-2008, Forecast to 2018)
❑ Meteorology Satellites Launched to 2008, Planned/Anticipated: 2009-2018	

Part 4: Satellites Launched to 2008, Planned/Forecast to 2018

A complete listing of Earth observation and meteorology satellites launched from 1999-2008, as well as those anticipated/planned to be launched by 2018.

The listing includes:

- Satellite imaging characteristics
- Operator typology
- Prime manufacturer/uncontracted satellite missions