



Earth Observation Big Data for Water Management

Paradigm change in the GeoSpatial domain

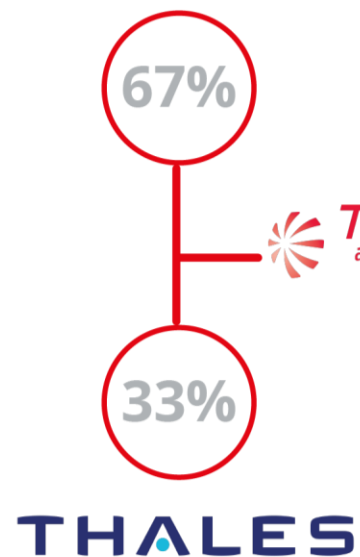
Elena Francioni

e-GEOS – Product Management and Innovation

31st May 2019

e-geos

IS A GLOBAL LEADER
IN GEOINFORMATION
APPLICATIONS AND SERVICES



Contracts
People
Assets

80%



AN ASI / TELESPAZIO COMPANY

20%



COSMO-SkyMed
exclusive worldwide rights

100%



GEOINFORMATION



AN ASI / TELESPAZIO COMPANY



an e-GEOS (ASI / Telespazio) Company



GEOINFORMATION IN NUMBERS



**INTERNATIONAL
MARKETS**
80%



**DOMESTIC
MARKETS**
20%

10+

SATELLITE MISSIONS
DATA ACQUIRED.

70millions

AGRICULTURAL PARCELS

750+

MARITIME REPORTS/ YEAR

100m €+

REVENUES

10+

COMMERCIAL USER TERMINALS
AROUND THE GLOBE

4100+

MAPS PRODUCED
IN 4 YEARS

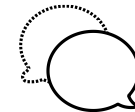
360+

ACTIVATIONS OF THE e-GEOS
EMERGENCY MANAGEMENT SERVICE

500+

PEOPLE

GEO-INFORMATION HUB



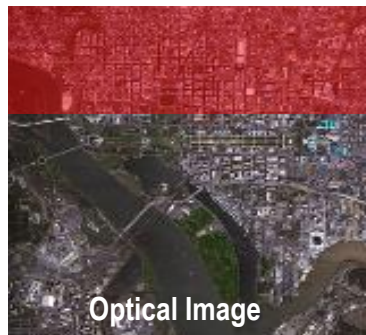
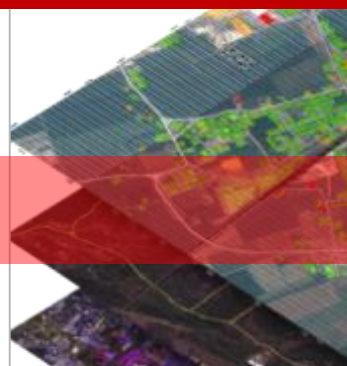
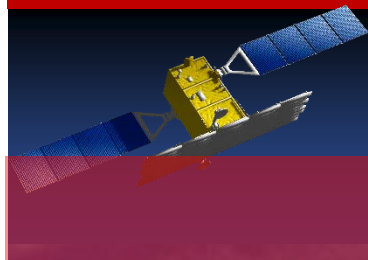
**DATA
OPERATOR**

**DATA
ACCESS HUB**

**CONTENT
DEVELOPER**

**SERVICES AND
PLATFORMS PROVIDER**

CONSULTANCY



Management of Earth
Observation Receiving
Ground Segment

Geodesy

Provision of Optical and
Radar Satellite Data
Non EO data

Data analysis and
integration &
Geographic Layers
production

GeoInformation
Systems and Services

- As a service
- On premises

Projects fed by
international funding
institutions

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AN ASI / TELESPAZIO COMPANY

GAFAG
an e-GEOS (ASI / Telespazio) Company

TELESPIAZIO
a LEONARDO and THALES company

Company internal

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THE SPACE SECTOR

- The Space sector has contributed to open new technological frontiers due to the extreme and demanding nature of operating in deep space environment as well as to specific mission innovative requirements and new markets (space assets themselves, “fall out” markets)
- Today Space sector through the broad range of services available represents a fundamental infrastructure to monitor the Earth, its evolution in all the mega trends and challenges and to monitor pattern of activities



Space Democratization - #space4sdgs

- Decreased costs, increased capabilities and path breaking innovations
- The ability of satellites to transform businesses and quality of life today is more relevant than ever, space technologies expand at an exponential speed
- Communication satellite in LEO and GEO orbit key foundation for hyper connected economy and IoT
- Earth Observation satellites more relevant to businesses and public good
- This dynamic is known as “democratization of space”,



New space race where the players, technology, and services are as diverse as it is innovative and space technologies contribute to a sustainable development of our planet

WE SCAN THE EARTH

THE SPACE SECTOR ECONOMY



Investors Can Get an Eye in the Sky

By BRADLEY HOPE

The latest technological innovation for data-hungry hedge funds is a fleet of five dozen shoe-box-size satellites.

A company called Planet Labs Inc. has launched a small constellation of what it calls "cubesats" that can deliver much more frequent imagery of economically sensitive spots than traditional satellites. Those spots include retailers' parking lots, oil-storage tanks or farmland.

The company, founded by three former NASA scientists, has now signed an agreement to supply data to Orbital Insight Inc., which mines satellite imagery for trading tips for hedge funds.

Until now, Orbital has relied on monthly or bimonthly imagery for its analysis. The deal with Planet Labs will give them access to weekly images at first.

Next year, if Planet Labs succeeds in a plan to launch an additional 40 or so cubesats, Orbital will have access to daily images of every piece of land on earth.

"Almost all economic activity is change," said Jimi Crawford, a former Google executive who founded Orbital.

Tiny Rover

Earth-imaging companies are turning to small satellites about the size of a shoebox to increase the availability of photos. Planet Labs keeps dozens of its in orbit to provide a more frequent

Scale comparison

Dove satellite

Human

NASA Landsat 8 satellite

Weight:

Weight:

TECNOLOGIA

I Big data arrivano dall'alto dei cieli

L'accordo di Leonardo con Spaceflights rafforza la presenza italiana nel settore dei minisatelliti, sempre più strategici e rilevanti per la raccolta di dati dallo spazio. Risoluzione, flessibilità e frequenza delle immagini sono i punti di forza della raccolta di informazioni visive che diventano un indubbio valore nella space economy emergente

18/03/2018

RLab

Satelliti e intelligenza artificiale

Come si ascolta dal cielo il respiro della Terra, per curarla

di JAIME D'ALESSANDRO, all'interno

Intelligenza artificiale

Il grande occhio

Un progetto ambizioso: capire l'evoluzione del mondo grazie alle immagini trasmesse dai satelliti e analizzate dalle Ai. E stabilire come, dove e quando intervenire

di JAIME D'ALESSANDRO

L'approfondimento

Così si guarda il respiro della Terra



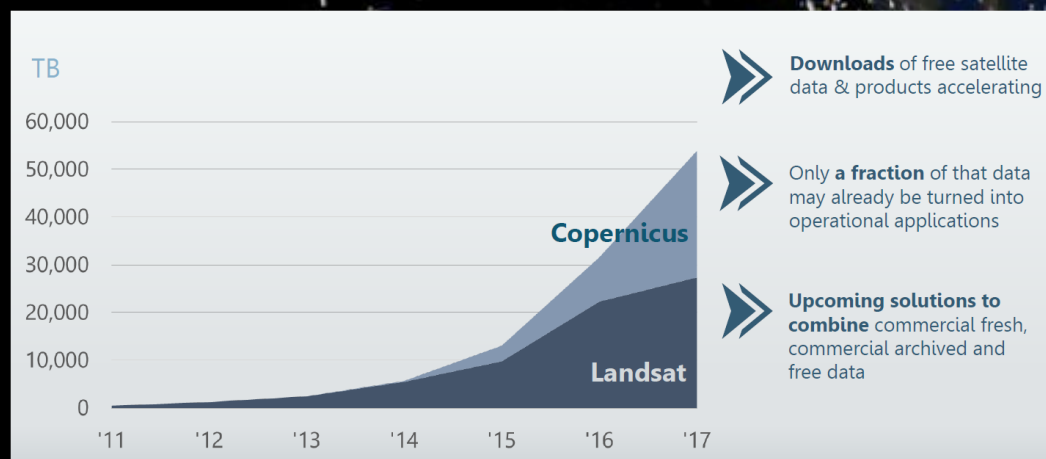
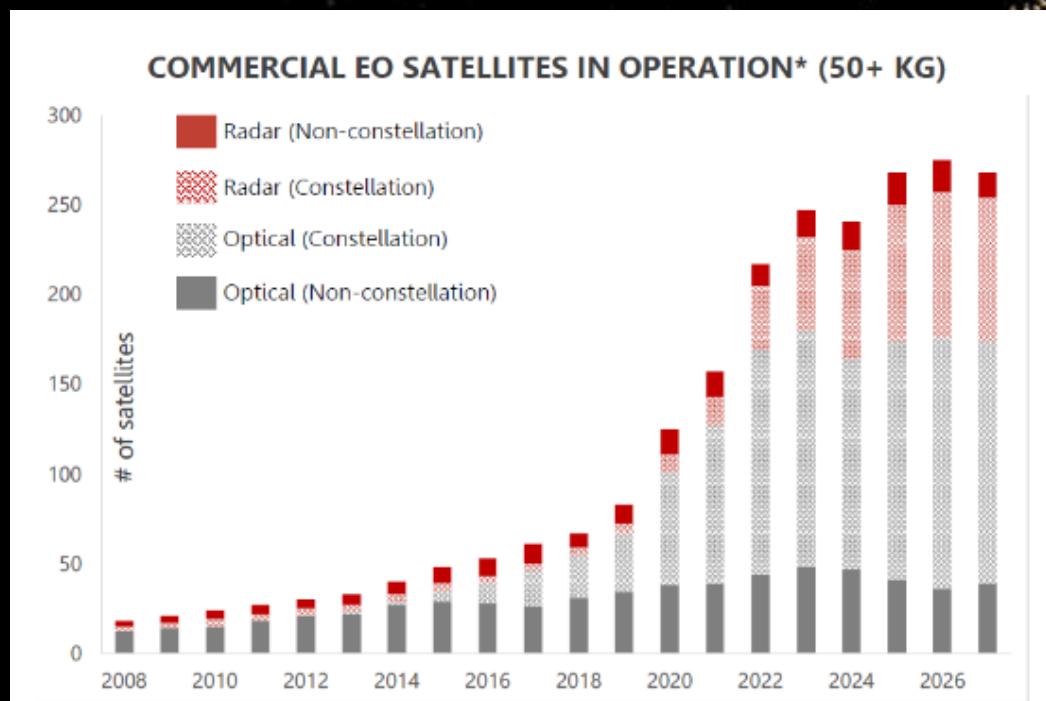
Earth-i leads consortium to develop on-board processing for video imagery from space

By News Desk - July 18, 2018

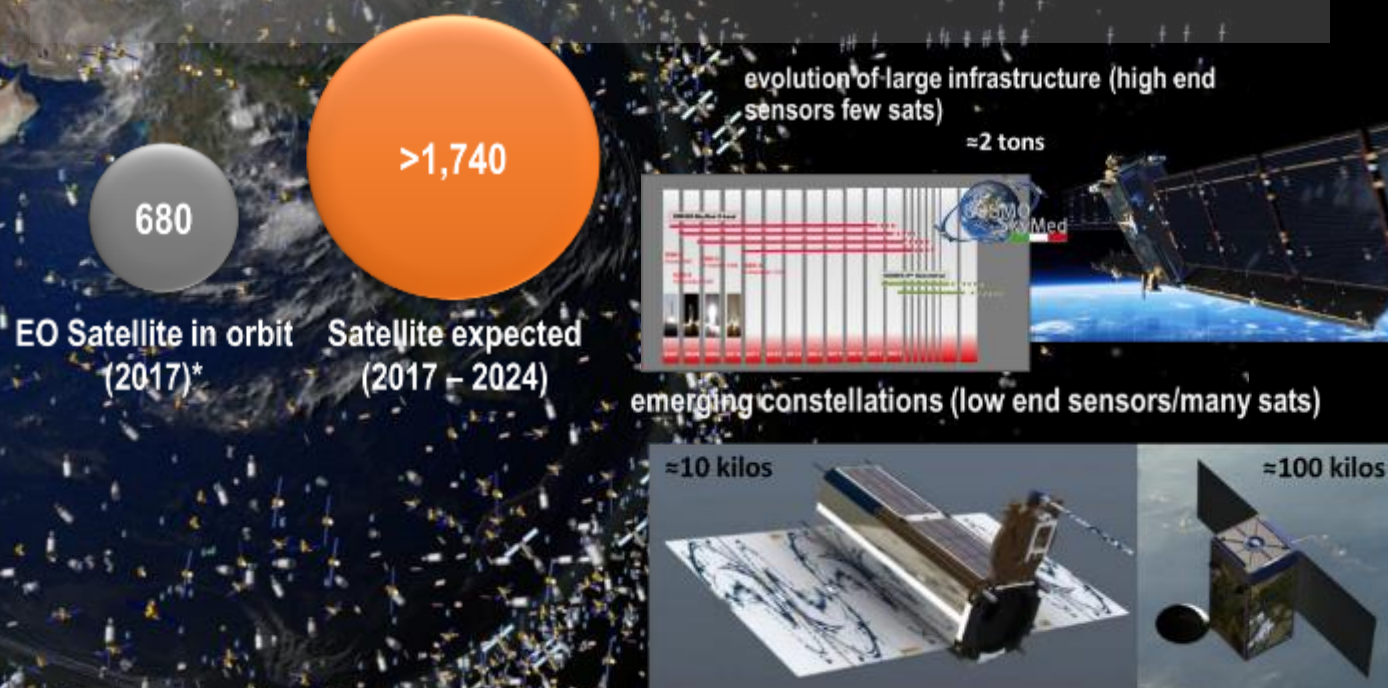
SHARE



Geo Spatial paradigms and Business Models are fast changing



Despite delay in some announced programs the number of EO satellites in orbit and the corresponding amount of generated data starts to grow fast



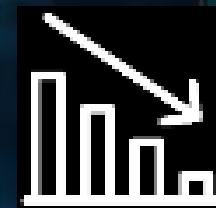
Use of EO data is exponentially growing and large potential through analytics exists to feed new information driven services

Geo Spatial paradigms and Business Models are fast changing

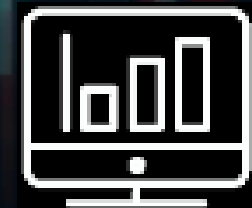
- Data, more and more, are just a part of the game
 - High temporal resolution to complement high and very high spatial resolution sensors
 - Federation of space assets through smart multi missions tasking platforms
- EO data definitive entered in the wider Big Data Analytics & IoT game
- Convergence in the data analytics and AI business for the EO
- Advanced algorithms, ML/DL/AI techniques are essential to address the **Information driven** market push for timely delivery of reports/insights



monitor daily



discover trends



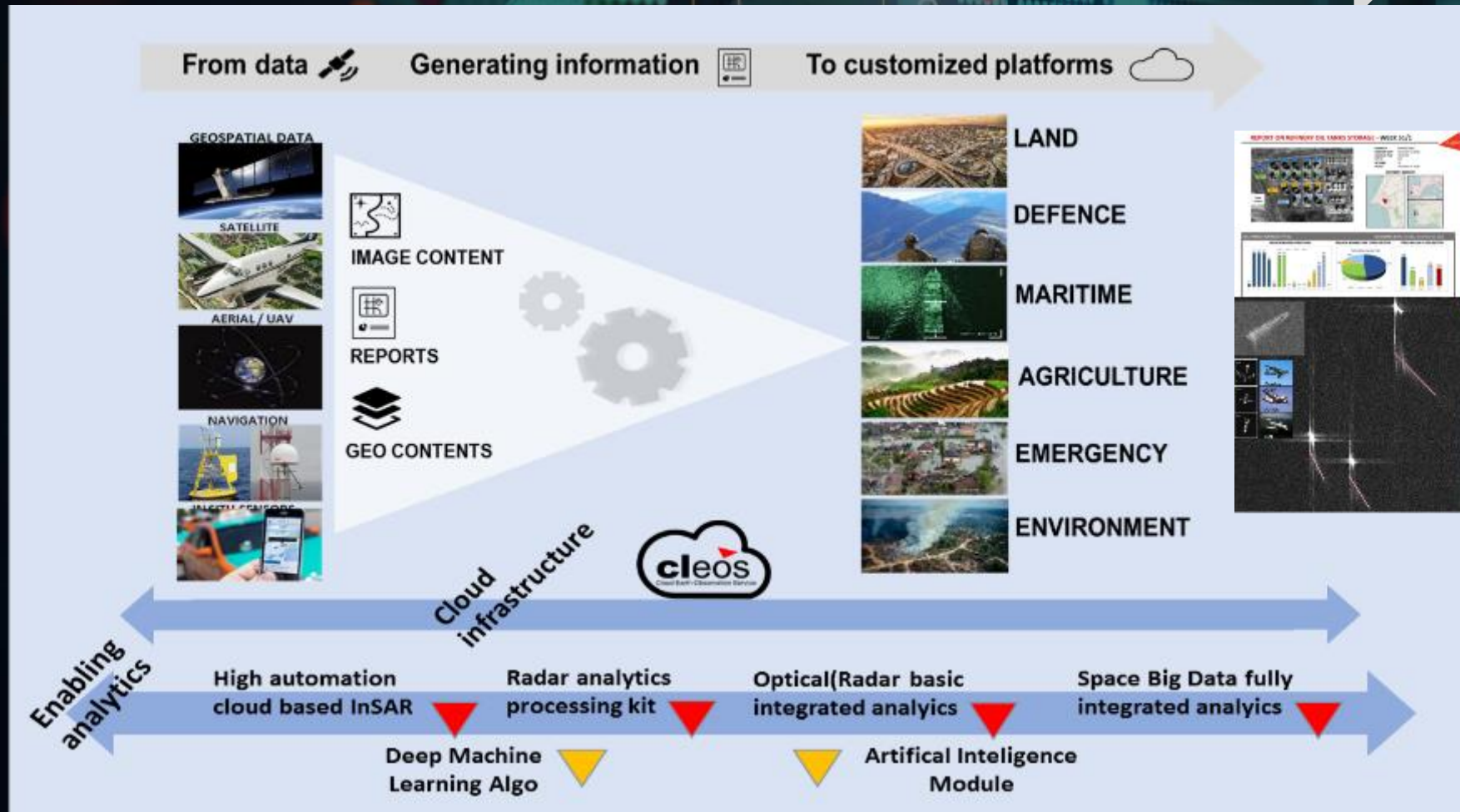
deliver insight

AI4EO – from Imagery to Information Reports

From data 

Generating information 

To customized platforms 

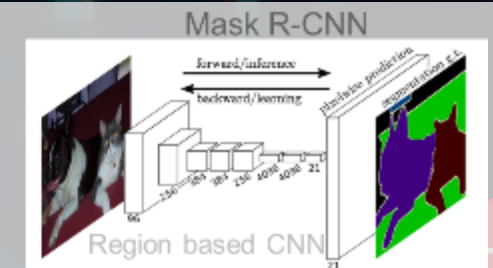
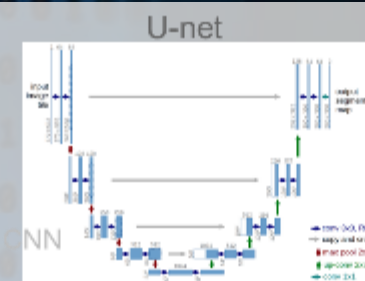
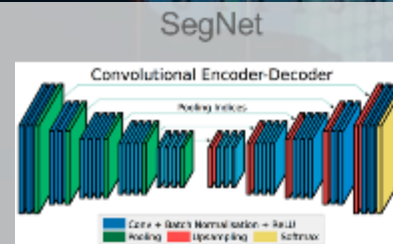


THE EO BIG DATA GAME

GEO Big Data + IA + Analytics are changing the game in the data consumption



- Big Players are envisaging a role to the Geo-Information Analytics driven solutions in their business model and they plan significant investments
- New information driven markets (big data, data analytics apps) drive increase in revenues for sat operators
- Industrial landscape is going to have a strong evolution with consolidation in place and a growing strong momentum in the evolution of partnership models



The
Economist

Data, data everywhere

A special report on managing information
February 27th 2010

Regulating the
The world's most v
no longer o

The data economy demands a n



DEFENSE & INTELLIGENCE



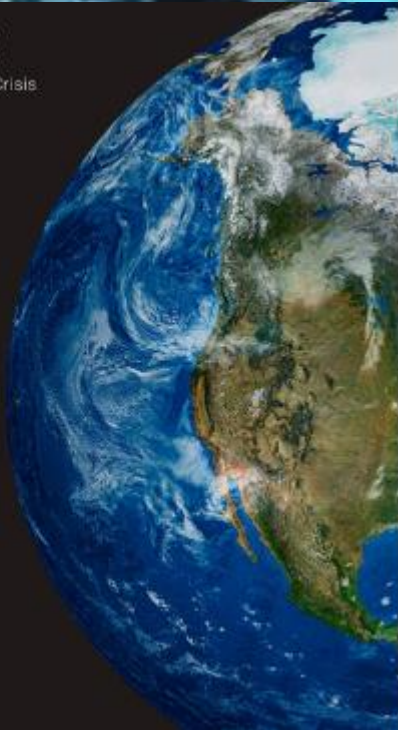
Digital Transformation Monitor

Big Data in Earth Observation

From Earth Observation – static imagery to pattern of life monitoring

OUR CHOICE

A Plan to Solve the Climate Crisis



Thanks to the increasing availability of data and to the new revisit time offered in both radar and optical domain, we can answer to much more questions that in the past.

The challenge is

- to design advanced algorithms taking advantage of AI techniques,**
- to process big data and to generate info reports for each vertical,**
- to conceive and to realize IT infrastructure for data and services dissemination through advanced business models**



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EYES ON THE EARTH

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