



## **Galileo Services**

**Luis Chocano**

**(on behalf of Axelle Pomies)**

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Vienna, Austria**



# Galileo Services Overview (1/2)



- Non-profit Making Association aiming at developing, promoting and maximizing the potential of the GNSS applications' market
- Comprising key GNSS Downstream Industry players
- Representing all elements of the value chain and covering the different application sectors (aviation, maritime, road, rail, telecom...)
- Missions:
  - Voice Industry concerns & expectations toward the institutions
  - Share market experience and knowledge of user needs
  - Support the implementation of the European GNSS Programmes

# Galileo Services Overview (2/2)



## > Galileo Members:



indra

ineco

JAVAD



logica



NAVTEQ



THALES

TNO innovation for life

TOMTOM

veripos

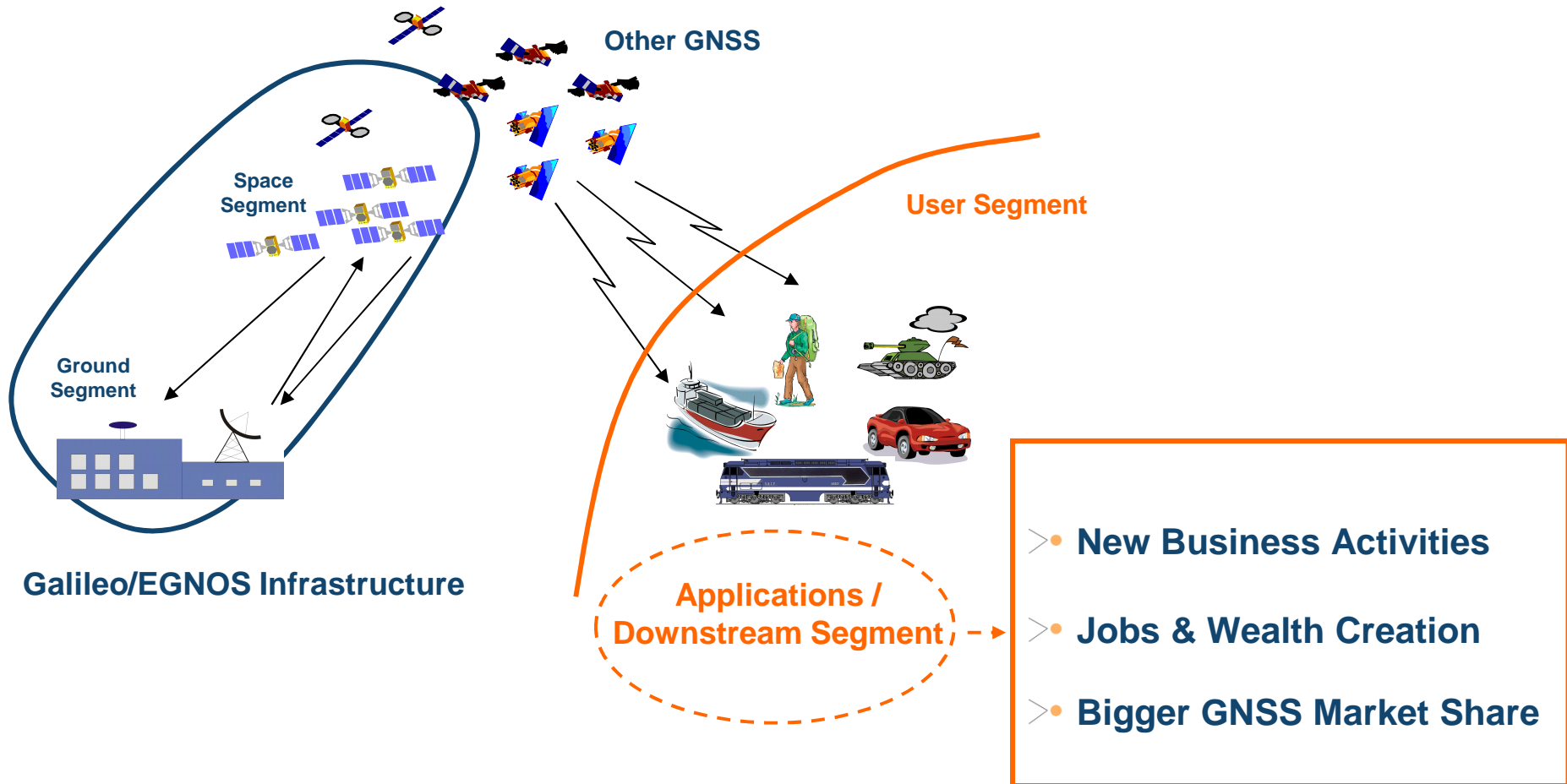
Backing on



Network (160 Members – 20 countries)

**Satellite navigation applications realizing  
global challenges and ambitions**

# GNSS Downstream Segment : Applications, Services, Equipment



# Galileo Services Position Paper



## SATELLITE NAVIGATION APPLICATIONS REALIZING THE AMBITIONS OF EU2020



Available at: [www.galileo-services.org](http://www.galileo-services.org)

### 1. Challenges & Ambitions for Europe

### 2. The necessity of EU public funding for GNSS applications R&D

*EU public funding is necessary for Europe to reach excellence, be competitive in a global market and expect future commercial and societal benefits*

*GNSS applications constitute one of the most promising markets for Europe*

### 3. EU public funding level required for maximizing the benefits for Europe

### 4. The critical GNSS technologies, applications & services

### 5. Crucial importance of users' involvement in EU projects

### 6. Horizon 2020 - "Galileo Services" Recommendations

*GNSS technologies and services*

*Enabling Activities to support market penetration and development*

*Other support activities from European Institutions*

# Challenges of the 21<sup>st</sup> century

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- Societal challenges:
  - health, environment, agriculture, ageing population, security of citizen and consumer, public and civil protection, safe and efficient transport and mobility, citizen rescue, land management, energy, full employment, connectivity, globalization, knowledge and know-how management and protection...
  
- Common denominator : economic health of countries
  - Growth, Competitiveness, Job creation
  
- Part of the growth-enhancing items : R&D and Innovation



# Necessity of public funding for GNSS applications R&D (1/2)

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- Public funding necessary to reach excellence, be competitive in a global market and expect future commercial and societal benefits
  - GNSS technology mature commodity, but still requiring major improvements
  - Without public support : GNSS development to follow purely economic approach from industry preventing to reach excellence
  
- GNSS applications : one of the most promising markets (1/2)
  - Contribution to all major global policies, as part of the solutions to the next generation challenges
  - Immediate benefits:
    - ➔ creation of new industrial activities, and hundreds of thousands of jobs
    - ➔ enhancing the day to day life and wellbeing of citizens

# Necessity of public funding for GNSS applications R&D (2/2)



- >• GNSS applications : one of the most promising markets (2/2)
  - Annual growth rate of Global GNSS market = +11%
  
- >• Public budget **dedicated towards GNSS applications R&D**
  - decisive impact on the GNSS market
  - Generate a snowball effect fertilizing further applications and domains with GNSS technology
  
- >• Significant catalytic effect of public budget in GNSS field expected

**In Europe : EUR 1 invested in GNSS application R&D generates about EUR 100 of European turnover**



# R&D Funding – Public Contribution



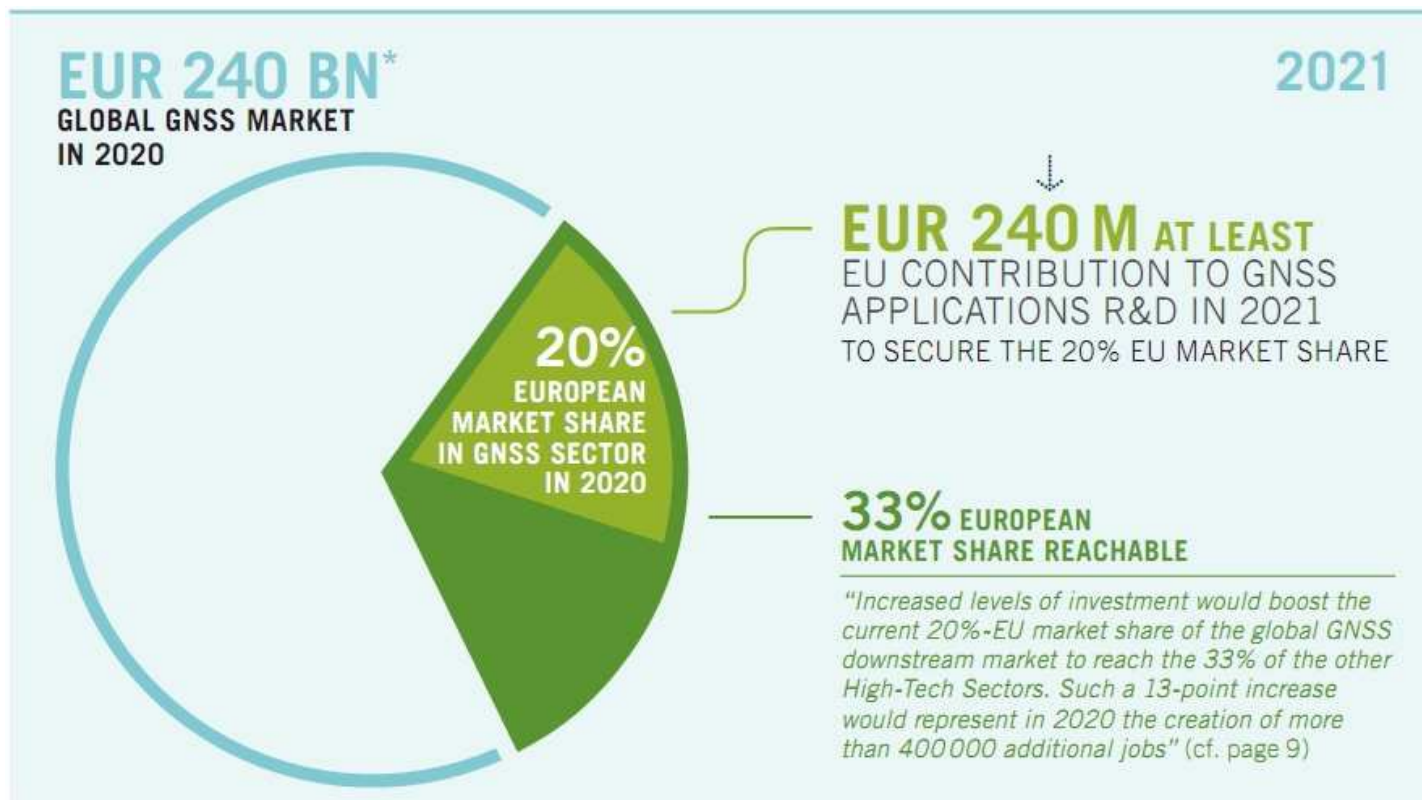
## MINIMUM LEVEL OF EU PUBLIC FUND REQUIRED FOR GNSS APPLICATIONS R&D FROM 2011 TO 2021



\* GSA estimates

# R&D Funding – Public Contribution

## MINIMUM LEVEL OF EU PUBLIC FUND REQUIRED FOR GNSS APPLICATIONS R&D FROM 2011 TO 2021



\* GSA estimates

# Critical GNSS technologies, applications & services (1/2)

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- Requirements not satisfied yet:
  - Integrity, confidence, reliability, robustness and security: e.g. protection against interferences/jamming, spoofing and multipaths enabling automation; authentication; liability/safety/governmental critical services
  - Availability: e.g. constrained environment, GNSS coverage, indoor
  - Continuity: e.g. enabling seamless indoor/outdoor services
  - High accuracy: e.g. enabling scientific and professional applications, such as cadastre or ADAS applications

**Main challenges of GNSS-based services at user level :  
Reliability, Robustness, Security, and High Performance**

# Critical GNSS technologies, applications & services (2/2)

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- R&D effort to be focused on achieving the best combination, through suitable hybridisation techniques and design of advanced integrity algorithms given application specific constraints, of:
  - GNSS signals and services (GPS, Galileo, Glonass, Compass, SBAS, GBAS, pseudolites...)
  - Positioning Sensors and ICT, Information and Communication Technologies (3G/4G/LTE, Wi-Fi, RFID, DAB/DVB, Radar, odometer, clock, gyroscope, accelerometer, magnetic compass (MEMS)...) )

## GNSS technologies and services

To support GNSS downstream Industry in investing and developing critical technologies, applications and services

To pursue Research aiming at improving GNSS performances, mainly multi-constellation multi-sensor receiver

To encourage the emergence of innovative ideas, whatever the domain is, through very open calls for proposals

### Enabling Activities to support market development

To develop adequate value added content (e.g. high precision or indoor digital maps)

To pursue enabling activities : Market analyses, promotion and awareness, standardization, certification, demonstrations and operative pilot projects

To pursue international cooperation

To make use – to penetrate markets and to spin off new business opportunities – of both : industry locomotives & Innovation capacity of SMEs

## Other support activities from European Institutions

Massive procurement from the public sector & Regulations

Regional and national procurement plans

Close dialogue between the Institutions and GNSS downstream industry

# Conclusion

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**GNSS application industry can act :  
to take up EU challenges  
to reach EU2020 ambitions**

***Public funding for GNSS Applications  
R&D is required to maximize the  
socioeconomic benefits for citizens !!!***

**[www.galileo-services.org](http://www.galileo-services.org)**

***Thank you for your attention***

**Luis Chocano (Ineco)**

**on behalf of  
Axelle Pomies, GS Permanent Representative  
[axelle.pomies@galileo-services.org](mailto:axelle.pomies@galileo-services.org)**

abertis telecom

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ESSP

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communications via satellite

FDC

FUGRO

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NLR

NovAtel

OHB

Septentrio  
satellite navigation

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TELESPAZIO  
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THALES

TNO  
innovation for life

TOMTOM

veripos

and backing on



oregin