GALILEO
Decision Time

The Service Providers' View

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INTERGROUP SKY AND SPACE

STRASBOURG

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WHAT IS OREGIN ?

The ORganization of European GNSS INdustry of equipment and services:

- **82 European member companies**
- **information exchange**
- **cross-fertilisation of expertise**
- **point of contact/industry voice for the European Institutions**
- **publicity and lobbying**
- **fostering co-operation with non-European industries creating opportunities in overseas and global market**

OREGIN MEMBERS LIST

· ACSA (FRANCE)
· ADVANCED AVIATION TECHNOLOGY (UNITED KINGDOM)
· ADVETO AB (SWEDEN)
· AERODATA F. (GERMANY)
· AGROCOM (GERMANY)
· ALCATEL/SEL (GERMANY)
· ALENIA (ITALY)
· BCI (FRANCE)
· BMW-AG (GERMANY)
· BOMBARDIER TRANSPORTATION (GERMANY)
· CAA (GERMANY)
· CARLO GAVAZZI SPACE (ITALY)
· COM DEV Europe (UNITED KINGDOM)
· CS Communication & Systèmes (FRANCE)
· DAIMLER CRYSLER GROUP (GERMANY)
· DIGINEXT (FRANCE)
· EDISOFT (PORTUGAL)
· EGERY (FRANCE)
· ELNA (GERMANY)
· ERICSSON TELECOMUNICAZIONI (ITALY)
· ERTICO (INTERNATIONAL)
· EURO-TELEMATIK (GERMANY)
· EUTELSAT (INTERNATIONAL)
· FDC (FRANCE)
· FIAT (ITALY)
· HELLENIC AEROSPACE INDUSTRY (GREECE)
· IMEC (BELGIUM)
· INDRA ESPACIO (SPAIN)
· INTECS SISTEMI (ITALY)
· LEICA GEOSYSTEMS (SWITZERLAND)
· LOGICA (UNITED KINGDOM)·
· MAN TECHNOLOGIE (GERMANY)
· MANNESMANN VDO (GERMANY)
· MARCOSOFT (ITALY)
· MLR Electronique (FRANCE)
· MORS (FRANCE)
· NAVIONICS (ITALY)
· NAVOCAP (FRANCE)
· NEXT (ITALY)
· NOKIA (FINLAND)
· OmniSTAR BV (THE NETHERLANDS)
· ORMSTON (UNITED KINGDOM)
· RAYTHEON (UNITED KINGDOM)
· ROBERT BOSCH (GERMANY)
· SAGEM (FRANCE)
· SAIT RADIOHOLLAND (BELGIUM)
· SATCON (GERMANY)
· SATPLAN (FRANCE)
· SEATEX (NORWAY)
· SEMA GROUP (SPAIN)
· SENA GPS (SPAIN)
· SENER (SPAIN)
· SEPTENTRIO (BELGIUM)
· SKEYE (GERMANY)
· SPIRENT COMMUNICATIONS (UNITED KINGDOM)
· TCHIP SEMICONDUCTOR (SWITZERLAND)
· TECHNIUM (FRANCE)
· TELE ATLAS (BELGIUM)
· TELEMATICA (GERMANY)
· TELECONSULT (GERMANY)
· TELESPAZIO (ITALY)
· TELIT (ITALY)
· TEMEX TELECOM (FRANCE)
· TERRAFIX (UNITED KINGDOM)
· THALES ATM (GERMANY)
· THALES ATM (UNITED KINGDOM)
· THALES AVIONICS (FRANCE)
· THALES AVIONICS (UNITED KINGDOM)
· THALES (FRANCE)
· THALES NAVIGATION (FRANCE)
· THALES RESEARCH (UNITED KINGDOM)
· THALES TRACKS (UNITED KINGDOM)
· THALES COMMUNICATIONS (FRANCE)
· THALES AIR DEFENCE (FRANCE)
· THALES AIBORNE SYSTEMS (FRANCE)
· VAN HOPPLYNUS INSTRUMENTS (BELGIUM)
· VITROCISET (ITALY)
. EUROPEAN GNSS INDUSTRIAL
. ORGANIZATIONS MEMBERS OF OREGIN
. AUSTRIAN INDUSTRY (ASA)
· SCANDINAVIAN INDUSTRY (SGIC)
· SPANISH INDUSTRY (Galileo Sistemas y Servicios)

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Galileo Justification

The Logic is Simple:

- "European Transport infrastructure will double in loading by 2020" – EC DG TREN
- Europe cannot build infrastructure fast enough to keep pace with growing demand
- The existing infrastructure must therefore be used more efficiently
- GNSS is one system that can play a role in this efficiency
- If the role is a major, strategic role, then the EU should provide its own civil system – it logically cannot be dependent upon a third party.
- There is much to gain for the global public good from two interoperable but separate GNSS systems – thus providing high levels of redundancy, integrity, availability, continuity, accuracy, security etc

End of 2001 Decisions Crucial

It’s make your mind up time!

- Definition studies are concluding
- Real development must start now to meet milestones
- The decision to pursue the Galileo programme cannot be delayed:
  - frequencies
  - market
  - international credibility
  - political window of opportunity
- Oregin welcomes the JU process, and is willing to contribute to a poisitive decision in December.

Public Private Partnership

Industry Likes the Idea:

- The PPP idea for Galileo was a vision from the EC
- The broad aim was to reduce the impact on the public purse
- Industry immediately responded well
- If properly handled, the PPP must create market-pull rather than a technology driven system
- Investors will require a market return on their investments
- Returns today are not obvious – consider PFI with part of revenues secured by state contributions
- Potential users must have a say in system design
- Potential service providers (the potential private investors) must therefore have a say in programmatic decisions

Why no Direct Commercial Revenues to the Galileo Operator?

GPS Competition

Free signal (including EGNOS), future GPS III

Controlled Access/ Encryption

Aviation and safety of life users cannot use the System if encrypted

Too little added utility over Open Access Service (and without encryption, no licence fees)

Therefore more cost, risk and complexity

Royalties on Intellectual Property Rights (IPR)

Non-open standard could hinder market development and cause friction with our international partners

Revenues would anyway be marginal. Cannot make binding commitments yet based on its possible presence

Taxes on receivers, and shadow tolls **are possible, but could hinder Galileo competitiveness. They could not be raised on the current 1st world GNSS market**

Joint Undertaking : the private sector involvement?

- Participation of the private sector is not the real issue (there are pros & cons)
- However, private sector should be involved in some way (service development?)
- There is currently no real incentive for private industry to join the JU

Service Developer Role

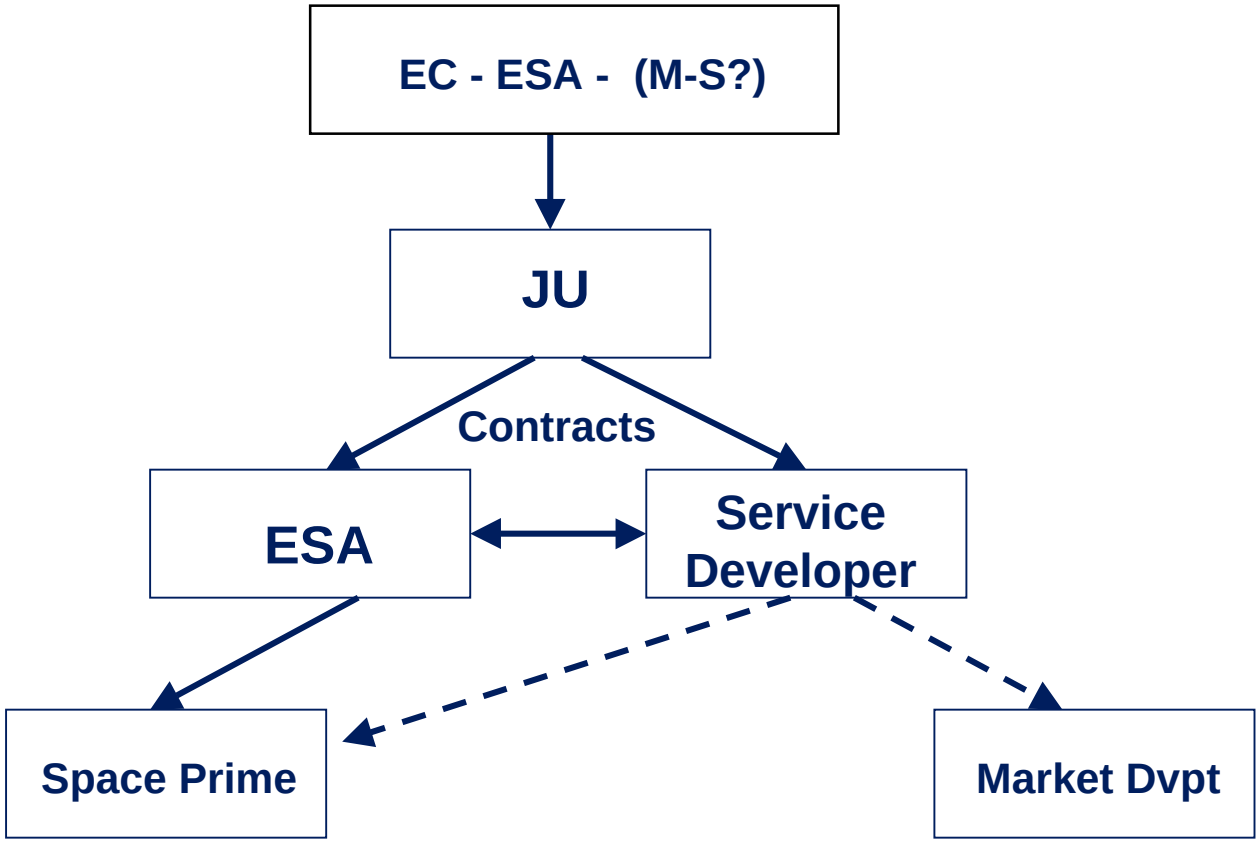
Assistant to the owner

- Operational specs validation
- Technical/architecture trade-offs evaluation
- Transverse aspects (interoperability, standardization, certification, etc)

Market Devt

- R & D preparation
- Follow-up, evaluation of Mkt Devt activities
- Identification of potential revenues for the future operator

Development Phase 2002-2005

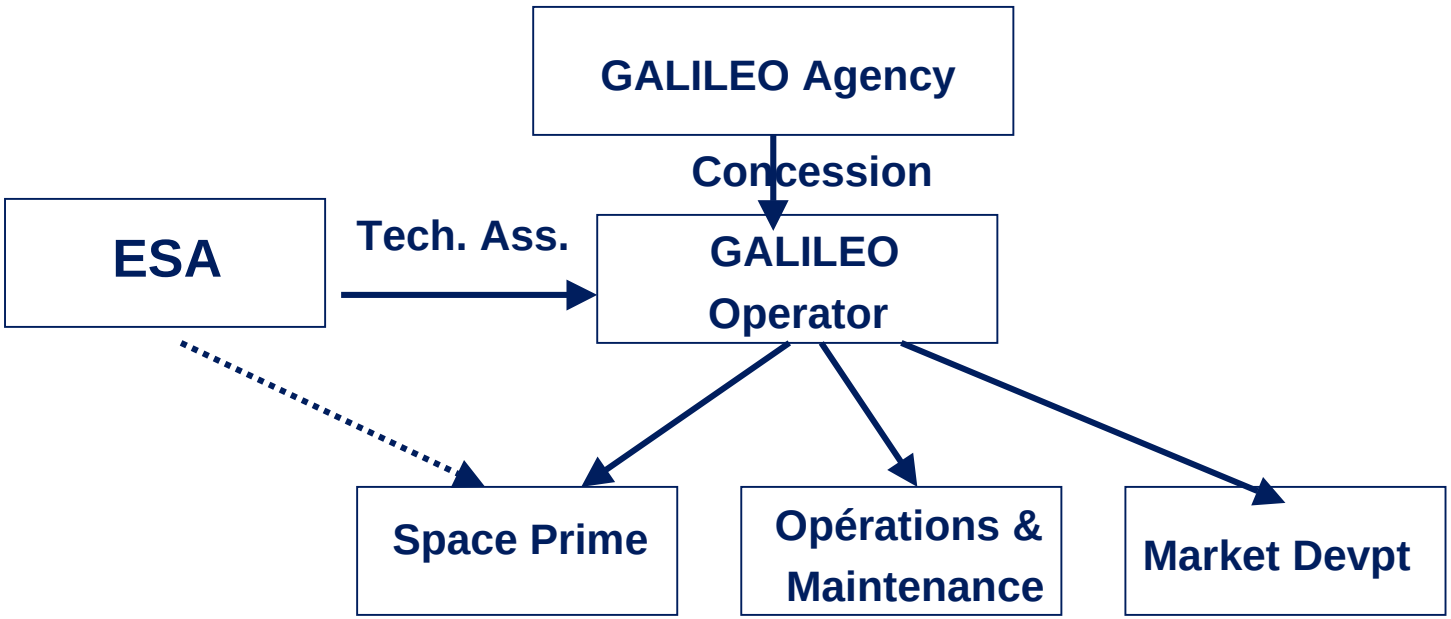


The setting- up of the PPP

- ITT end of 2002, with the view of selecting the Galileo Operator
- In Kind Delivery of the validated system by ESA, to the Galileo Operator
- Preparation of the concession contract
- The concessionnaire takes full responsibility of system deployment, in counterpart of availability payments for the public sector.
- The JU would have to evolve to manage the system evolutions
- Political control should be under a tbd public entity (security reasons)

Deployment Phase / Operations

(From 2005 onwards)



Complementary Involvement of the private sector

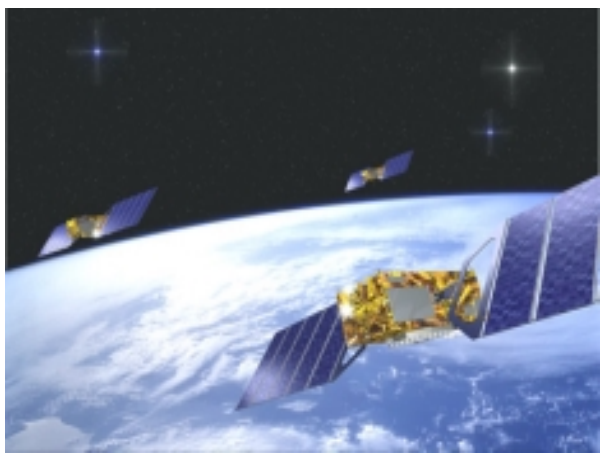
The private sector is fully committed to a R&D investment plan, to be coordinated by the Service Developer up to 400 M€, funded at 50% by the private sector:

Some special interests:

- **generic receiver**
- **car navigation**
- **urban and in-door positioning**
- **security applications**

Conclusions

- Galileo is needed very soon to ease European Transport congestion
- Industry is ready to participate and invest – if conditions favourable
- Direct revenue generation will not cover costs
- Revenue generation opportunities are a challenge
- Industry needs to help maximise revenues
- Service Developer role is essential
- Joint Undertaking is welcomed



- The mechanics of the PPP are now under intense review
- Galileo development needs a clear green light – now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