GALILEO
OREGIN CONFERENCE  FEBRUARY 27, 2001
Galileo Service Definitions (1)

- **Open Service**
  - performances to compete with GPS

- **Commercial Services**
  - market driven commercial services.
  - Access commercially controlled.
  - Services to include integrity, differential corrections etc.

- **Public Services**
  - **Safety of Life Services**
    - high availability and high integrity needs
      - *Integrity warnings – 6 second Time to Alarm*
      - *Availability 99.9%*
    - Access controlled.
    - Encrypted signal included
    - Final decision in 2001
Galileo Service Definitions (2)

- Public Services (continued)
  - Regulated Services
    - Common EU Policies
    - Same performance as safety of life.
    - Guarantees of service.
    - Access controlled.
    - Encrypted signal.
  - Search and Rescue
    - Location of distress beacons with acknowledgement to user through Galileo Navigation signal

- Navigation Related Communication Services.
  - Existing/ planned space or terrestrial communications systems to be used.
  - Option to include a packet data payload on Galileo will be decided in 2001.
Overview of Mission Requirements

- User needs
- Cost/Benefits analysis
- Security requirements
- Safety requirements
- Standard Issues
- Interfaces issues
- International issues
- Legal & Institutional issues
- Frequency Issues
- PPP objectives

Mission Requirements

SIS ICD & MOPS

User Terminal

GALILEO Requirements

Other systems

GALILEO Global, Regional & Local Components
GALILEO OVERALL ARCHITECTURE

User Terminal

Global Component
Regional Components outside Europe
Local Component

Intermediary Service Provider

External Entities
• Time-Ref. UTC
• Geo-Ref. ITRF

External Systems
• mod. GPS
• Glonass
• LORAN-C
• UMTS

Signal In Space

User Terminal
Galileo SAR
external systems
other sensors

Service Customer

system Administration and Operation

GALILEO
European GNSS Market 2005

Market Size €6Bn

- Mobile Phones 73%
- Car Navigation 23%
- Augmentation 1%
- Leisure 1%
- Fleet Mgt 1%
- Aviation 1%
- Surveying 1%
- Leisure 1%
- Fleet Mgt 1%
- Aviation 1%
- Market Size €6Bn

Car Navigation 23%
GALILEO discriminators

GPS alone: 55% urban coverage

GPS+GALILEO: 95% urban coverage

GALILEO: liability and guarantee on quality of service

GALILEO: certification for Safety of Life

GALILEO: local elements

etc.
Organisational and contractual aspects

- An operating agreement will constitute the link between the public side of GALILEO and the operator.
- The operator needs freedom to establish a business and the public obligations need to be adequately reflected.
- No legal requirement that the public side needs to be the owner of the infrastructure.
- A special vehicle company, separating the operator and the owner could facilitate the establishment of a PPP.
Total market size

Galileo total market size as share of addressable market
most likely values

- Addressable market
- GNSS penetrated
- Galileo share

Year

2010 2015 2020

Size million

1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500
General Roadmap Logic

2001  2002  2003  2004  2005

Mission Doc.

System Doc.

GALILEO

Consolidation

Development and validation

5th Framework Prgm

6th Framework Prgm

+ Important milestones:
  • World RadioConference (WRC-2003)
  • Flight model(s) availability
  • EGNOS availability
  • Management Structure
  • International discussions, Enlargement
Fifth Framework Program: Roadmap Logic

- 2001
- 2002
- 2003
- 2004
- 2005

Mission

System

GALILEO

<table>
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<tr>
<th>Consolidation</th>
<th>Development and validation</th>
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1- Local elements

2- Interoperability

3- Freq., Std, Certif.

4- Pilot projects

5- Services

6- Regulatory Framework
MAJOR STEPS IN 2001

- European Council in Stockholm (23rd March)
- Transport Council (5 April)
- Establishment of a single public authority
- Tendering process for the next phases