MARKET DEVELOPMENT
- the route to the market

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Outline of Presentation

Major Issues - what we know will happen over the next couple of years!

- Market forecasts and timing of infrastructure development
- Pilot Projects initiatives at EC/ESA plus national level

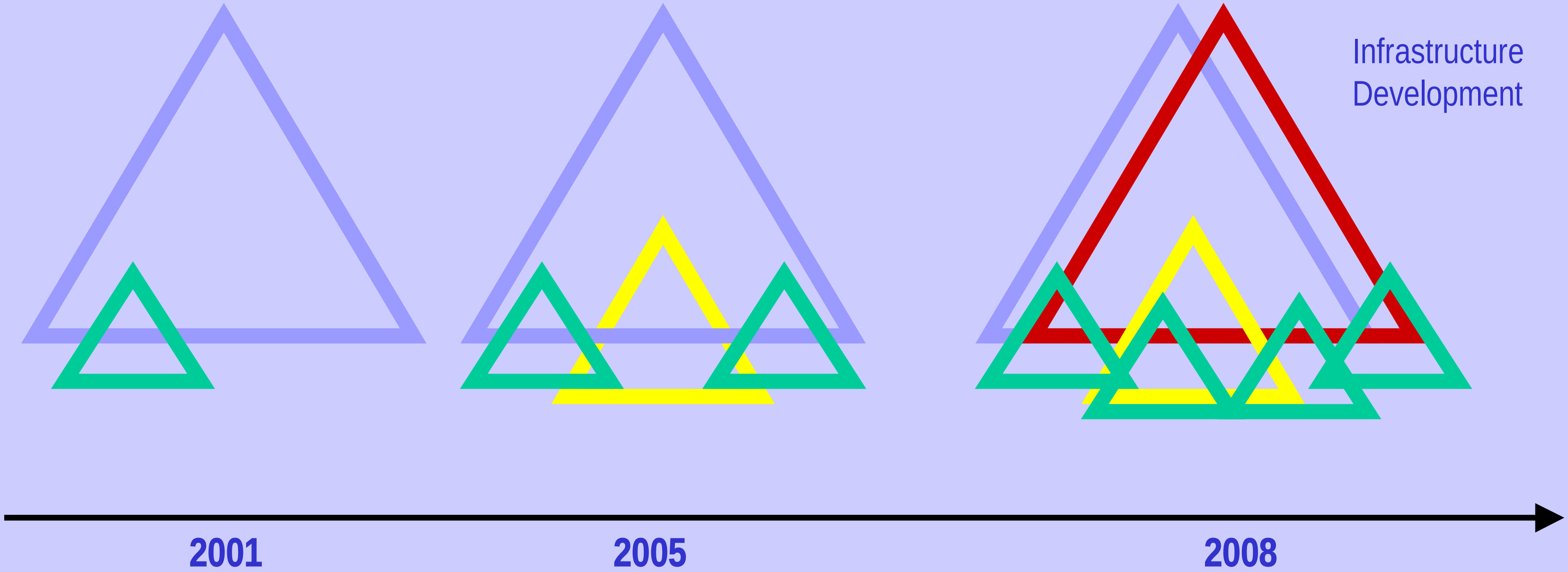
Market preparation
Role and responsibility of Private vs. Public sector

- European capabilities
  Understand Value Chains
- Regulative
  Market development

Conclusions - the challenge ahead

The Context for Market Development

Timing

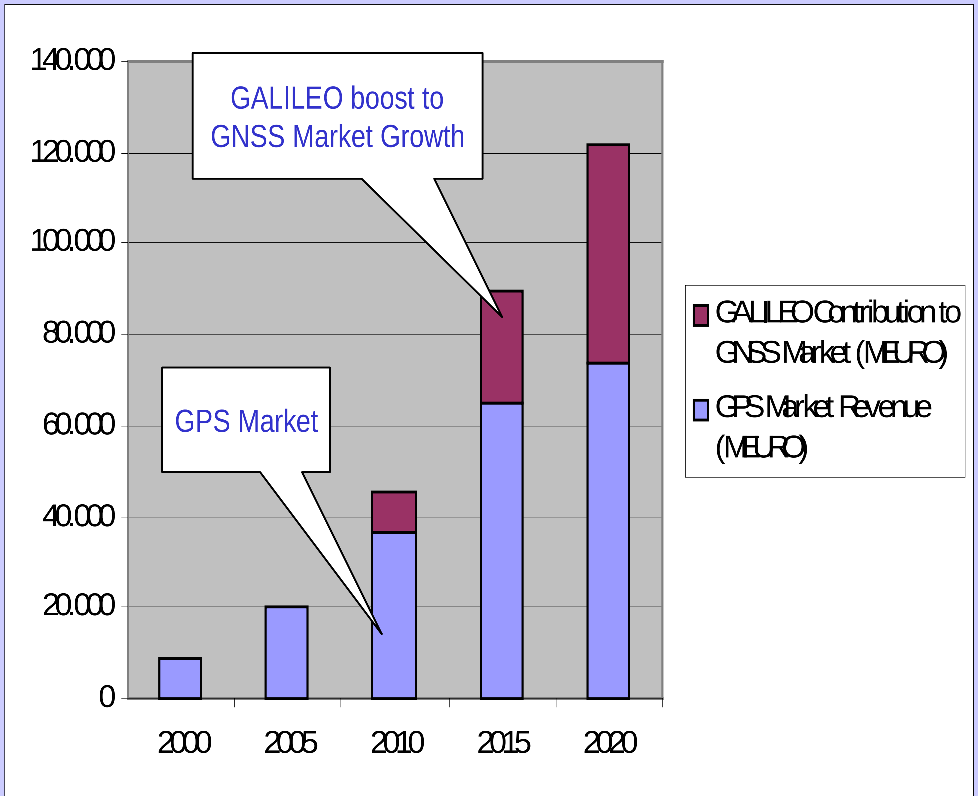


1. Issue:

Timing:
Market preparation - less than 7 years to Operational Services

GALILEO Contribution to overall GNSS market growth

Market prospects for European Industrial Players



Source: GALA Market study

Assuming:

that Galileo will boost the overall GNSS market equal to the 'Galileo share'

that the GNSS market without Galileo equals the GNSS (penetrated) market minus the Galileo share

that European suppliers will maintain their current global market shares

that European suppliers share of GNSS global service revenue equals 20% (European services will be provided by European suppliers)

that GPS and GALILEO will be used in a complementary role

that future standard for chipsets will be integrated GPS and GALILEO
ie, GNSS chipsets

all revenue provided in this analysis are gross revenues

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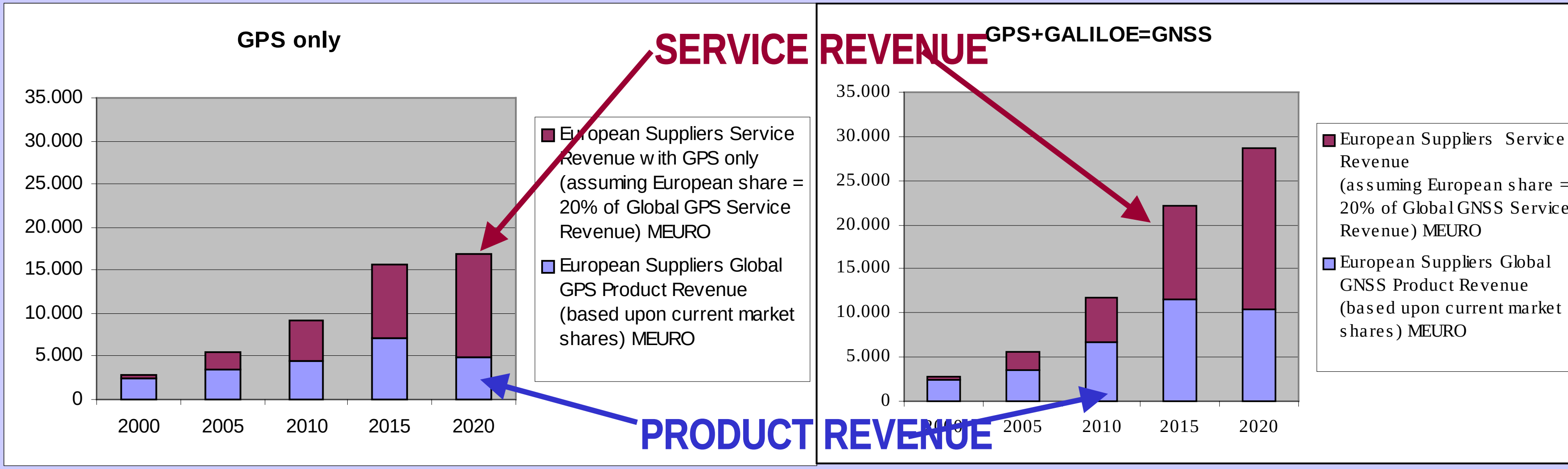
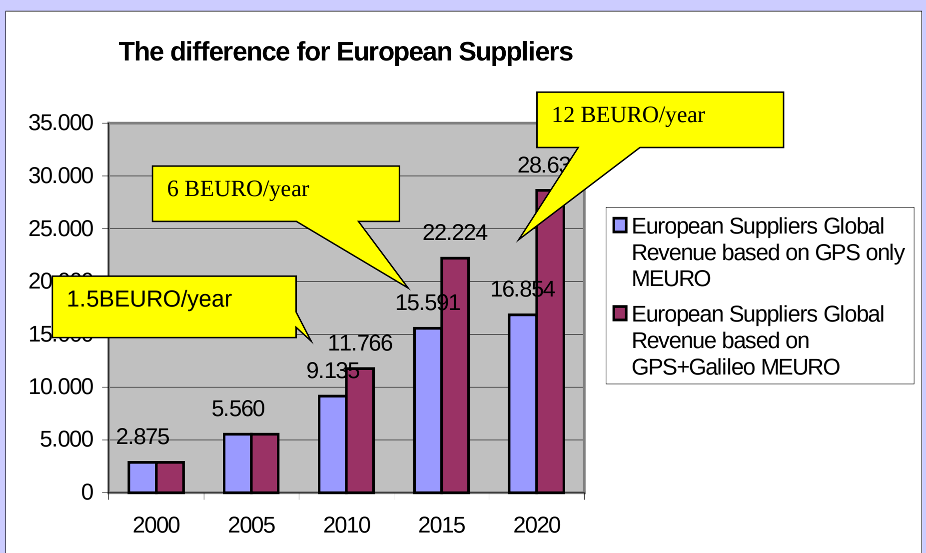
European suppliers Global Revenue

Market prospects for European Industrial Players





Source:GALA Market study

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Ensure European share

2. Issue:

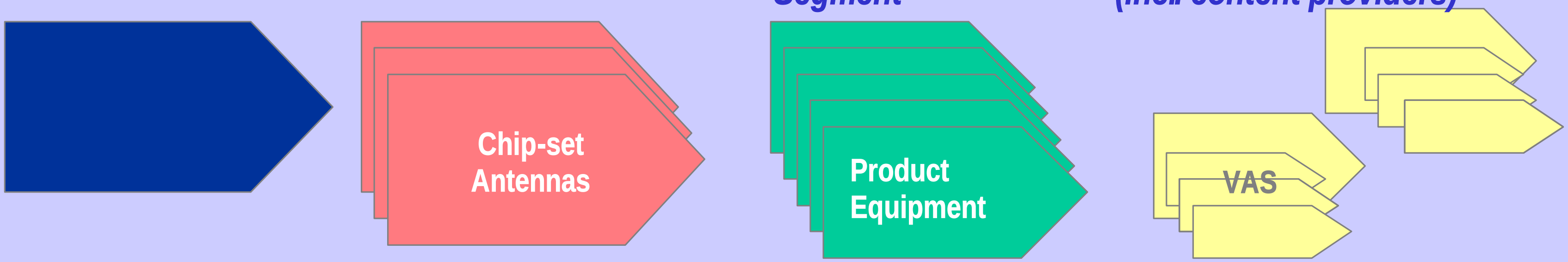
Market preparation must start now:

there is a huge market potential for GNSS but market preparations and investments are needed downstream to ensure that European suppliers will achieve their fair share of this global revenue

The Sat/Nav Value Chain

European suppliers global competitiveness

Signal operator | *Component Segment* | *System Integration Segment* | *Value Adding Service Segment (incl. content providers)*



← Global markets → Regional/local markets

Component Segment

Strong / Lead

Digital Maps

Medium

Aviation Receivers
DGPS Receivers
Timing Chipsets

Weak

Navigation chipsets

System Integration Segment

Strong / Lead

Car Nav/telematics
Fleet Mgt & tracking
Mobile Phones

Medium

Aviation Receivers,
Marine Navigation
Agriculture Systems

Weak

Mobile Com : PDA
machine control

Value Adding Service Segment

Strong / Lead

ATM Systems
telematic services
Fleet Mgt Services
Augmentation
Mobile comms

Medium

Weak

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European Suppliers Global Market Shares

European suppliers global competitiveness

VEHICLE NAVIGATION	25%
MOBILE COMM	60%
POLICE/FIRE/AMBULANCE	25%
FLEET MAAGEMENT ALL VEHICLES	25%
PERSONAL OUTDOOR RECREATION	4%
LAND SURVEY&GIS MAPPING	8%
Fisheries & EEZ	8%
MARITIME	8%
MINING	8%
SEARCH&RESCUE	8%
OIL&GAS	8%
RAIL	50%
ENVIRONMENT	8%
PRECISION AGRICULTURE	6%
PRECISION SURVEYING	8%
AIR	8%
PERSONAL PROTECTION	4%
ASSET MANAGEMENT	25%
TIME	4%
Met Forecasting Ionosphere	8%
SPACE	8%
GEODESY	8%
INLAND WATERWAYS	8%
VEHICLE CONTROL&ROBOTICS	8%
CONSTRUCTION &CIVIL ENGINEERING	8%
SECURED DATA	25%

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Source:Technomar study

European suppliers global competitiveness

3. Issues:

Competitiveness:

Build on the Strengths of European Industry

- **Do not invest in areas where someone else can do it cheaper or better**

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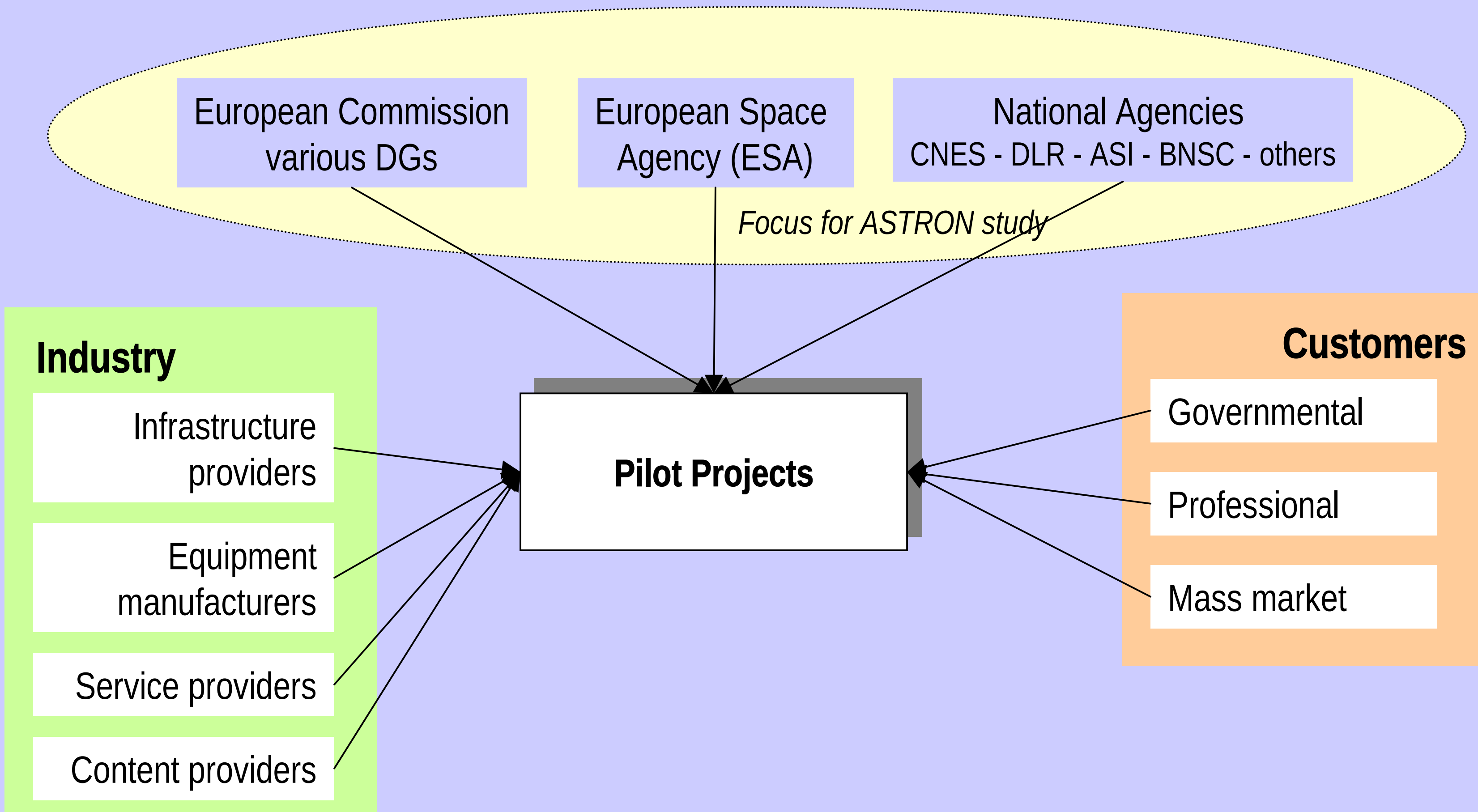
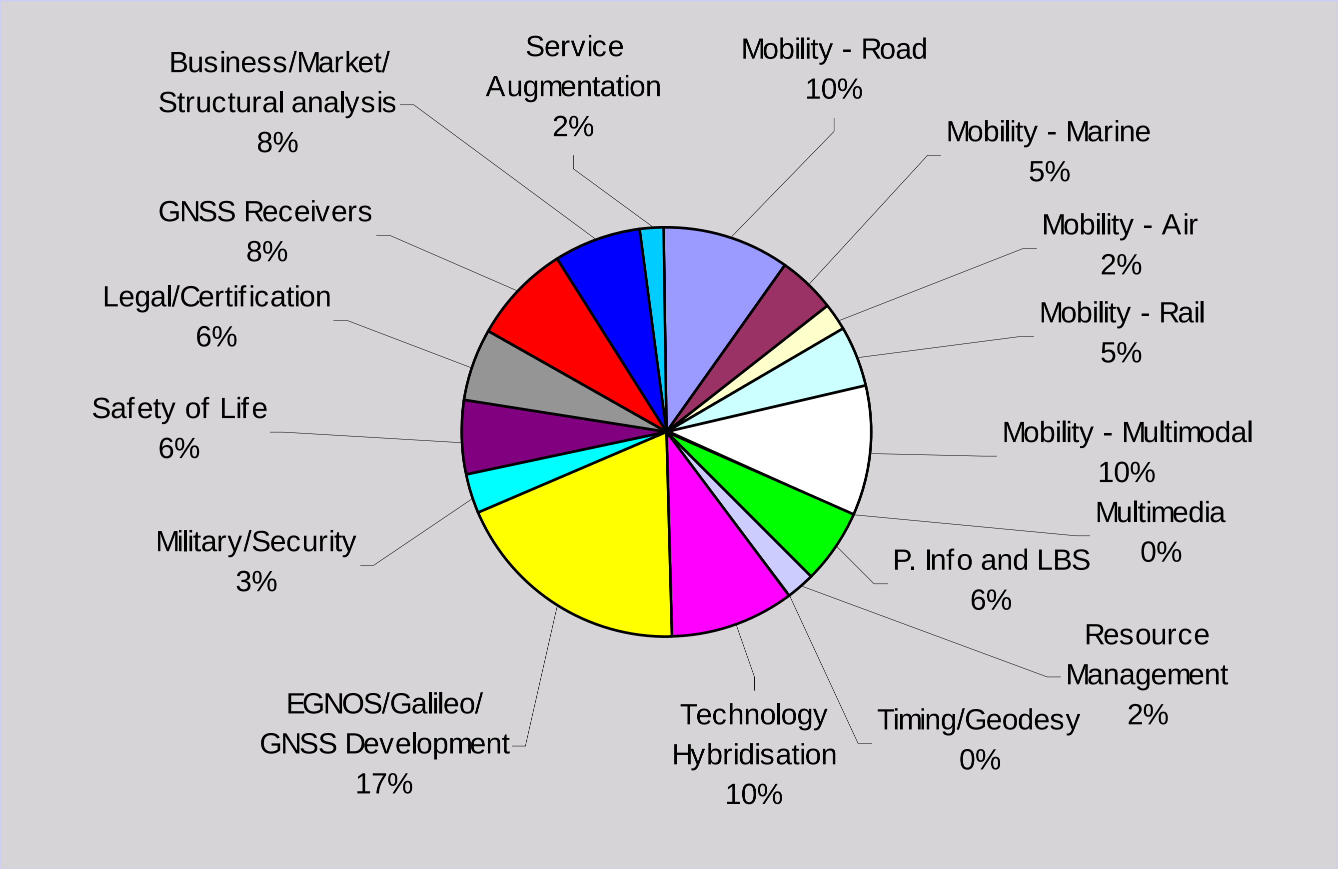
ASTRON: Mechanisms and priorities for the implementation of Pilot Projects

Stakeholder Model



Current target applications (ESA+EC)

ASTRON: Mechanisms and priorities for the implementation of Pilot Projects



Yearly budgets :
apx. 50-100 MEURO

Commnets:
- spread of activities
- little visibility of success
- common direction/strategy of various Programmes?
- Industry's level of influence?

Compiled from: ESA Programmes (ARTES), DG INFSO, DG TREN and DG JRC - FP5

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Summary of National initiatives

ASTRON: Mechanisms and priorities for the implementation of Pilot Projects (preliminary results)

Funding AGENCY	FOCUS	Yearly budget (apx.)
CNES	Tele Com, Intelligent Transport, EO, Telematics Demonstration of technology, high risk	Apx. 5-10 MEURO
ASI	PERSEUS Programme, SME Programme (Innovative Services),	Apx. 40 MEURO
DLR	Most R&D undertaken within DLR Bavarian initiative: Mercator Park	?
BNSC	Sat Com Programme, SME focus, market driven	Apx. 8 MEURO
TEKES	IT Programmes, Tele Com, Navigation Business Model, Venture Capital	Apx. 8 MEURO

Total around 60MEURO/year

50% funding scheme

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Characteristics of Pilot Programmes

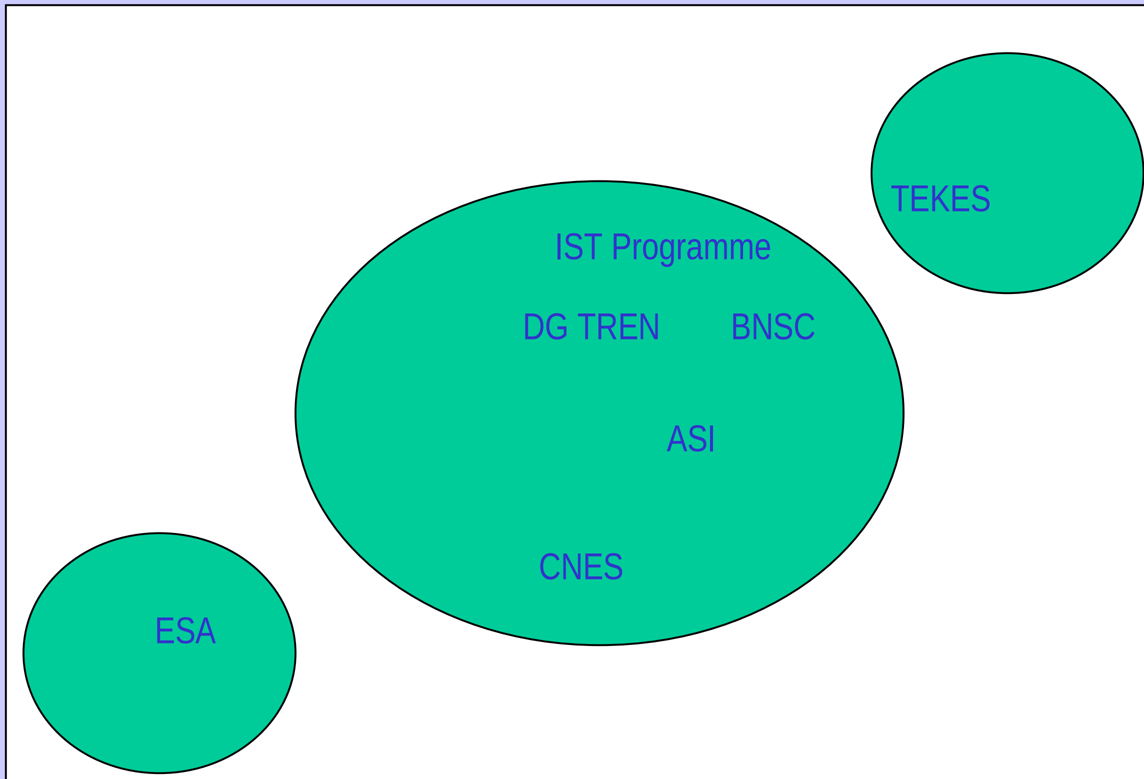
ASTRON: Mechanisms and priorities for the implementation of Pilot Projects (preliminary results)

Approach

Comprehensive approach

Network/ value chains

Technology focus



Non-space Nations

Traditional Space nations

Enabling technologies/ basic research

Pilot Demonstrations

Market Introduction

Types of Pilot Projects

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4. Issues:

Public funding opportunities for Pilot Projects

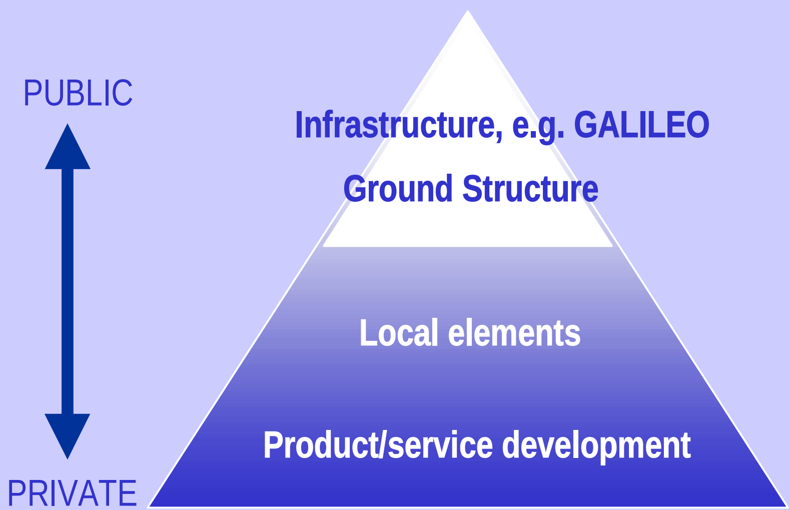
Considerable amount of funding (around 100MEURO per year) will be available over the next number of years to test new ideas and concepts

Industry can participate in discussions for better coordination and strategic direction of funding resources through the ASTRON initiative

Public versus private role in developing the market??

Role and responsibility of Private vs. Public sector

Market Preparation



Regulation to impact market development, e.g. E112

Public (partly) funded Pilot projects to stimulate market development

Little visibility of private role!
Are we happy with this?
What could be improved to stimulate European investment and hence competitiveness downstream?

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SWOT

Market Preparation

Strong leads in Mobile Comm, telematics, service markets
Good socio-economic infrastructure, e.g. education, traffic infrastructure, public funding themes, regulative drivers

STRENGTHS

Risk avoidance
Except for a few areas - EU players relatively weak on global markets - perhaps due to a strong home-market?
Lack of global strategic alliances?

WEAKNESSES

European Industry

OPPORTUNITIES

GALILEO as a driver to focus direction
Market development initiatives
Strong growth in sat/nav related markets

THREATHS

Competing/dependent technologies, e.g. UMTS
What If telematics market do not take off!
Galileo delay
Global competition

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Conclusions

Lessons learnt from other large scale space programmes, e.g. IRIDIUM - the best technology does not always win!

European industry must get organised to avoid creating a market for US and Japanese players - understand value-chains!

Take opportunity of public initiated and partly funded Pilot Projects themes to test new ideas and concepts

Leapfrog - take advantage of strong European global leads, e.g. Mobile Comm.

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