National strategies for Internal Cooperation in space

- The case of Germany -
Research Center
&
German Space Agency
&
Project Management Office
Sites and Staff

7,200 employees

30 institutes and test facilities

Budget 1.8 B€ (Space Agency+R&D)
- 16 Sites

DLR Stations: O´Higgins, Inuvik, Chetumal
DLR Lab: Almeria
Financing of DLR and research funding 2012 (planned)

- **Space Administration**
  - National: €270 million
  - ESA: €742 million

- **Project Management Agency**
  - Institutional funding R&D: €1,112 million
  - Third-party funding R&D: €410 million
  - Aeronautics Project Management Agency incl. management: €175 million

- **Research and Operations**
  - Institutional funding R&D: €382 million

All values in € million without settlement of cross-financing
International Cooperation in space programmes/projects being pursued to achieve objectives which cannot be achieved alone by

- Distribution of responsibilities/workpackages over more players
- Complementing/pooling their capabilities and resources

For European States International Cooperation naturally starts in Europe
Lisbon-Treaty

- Lisbon-Treaty provides EU with an explicit competence for “space”

- “Space” competence of EU, like competence for “research”, however not a full “shared” competence, but rather a “parallel” competence

=> Lisbon-Treaty does not restrict the competence of Member States and therefore of ESA with regard to “space”, hence, does not place the European Union into an overall coordination role

=> Lisbon-Treaty calls for general discussion/decision on the sharing/division of work and responsibilities between EU, ESA and Member States
Sharing/Division of main responsibilities between European actors

European Union: ?

ESA: ?

Member States: ?

International relations: ?
Sharing/Division of main responsibilities between European actors

DLR views (I)

European Union and ESA:

- Joint development of a **European space policy**
  (call for such a policy in Lisbon-Treaty and also in ESA-Convention)

**European Space Policy** to be implemented by all three actors EU, ESA and MS

- **Clear division of responsibilities** in order to achieve objectives of policy
- **Avoidance of mixed funding** (mixed rules)
- **Avoidance of unnecessary duplication**

Actor financially responsible for activity represents activity on international scene and takes over **responsibility for related International Relations/Cooperation**
Sharing/Division of main responsibilities between European actors
DLR views (II)

European Union: Applications and Legislation
• EU flagship programmes **Galileo** and **GMES**, including
• the development of their services/downstream markets
• space-related **legislation**

ESA: Foundations
• **Science and Technology**
• **Launchers** and Exploration/Human Space Flight
• if needed, also **funding of development activities related to Galileo and GMES**, technical implementation of EU programmes (e.g. procurement)
European Union

GMES
Global Monitoring for Environment and Security

Applications & Services

Space Segment

In Situ Systems

Ground Segment & Data Management
European Space Agency

ISS

Cryosat (Science)

Ariane 5

EDRS (Technology)
Sharing/Division of main responsibilities between European actors
DLR views (III)

**Member States:** Applications and Foundations, Legislation

- supportive R&D and **payloads**
- **small missions/precursor missions, small constellations, infrastructure contributions**
- space-related **legislation**
DLR international research cooperation with Universities (space & aeronautics)
DLR cooperation with space agencies
German Payloads – International Flight Opportunities

(ESA Science programme following same principles)

SIMBOX (CMSEO, China)

InSight (NASA, US)

E-Rosita (RSA, Russia)

Hayabusa (JAXA, Japan)

Win-Win Deal:
Sharing of science for sharing of flight opportunity
German precursor missions (new science, new technology)

CHAMP
DE-FR

GRACE
DE-US

=>

GOCE
ESA

Geoid from GRACE-data
German small missions/small constellations

TerraSAR/Tandem-X

SAR-Lupe constellation (military)
Close cooperation with FR Pleiades, and other MS

Incorporation of national HR-missions into GMES via data procurement still unresolved

<= =>

Merlin, DE-FR

Earth Observation

EnMAP

Data provision to EUSC
DLR infrastructure contributions to European programmes

Galileo-CC, Munich

GSOC – Columbus-CC, Munich

Test-Stand Ariane engines, Lampoldshausen

GATE (Berchtesgaden, Bavaria)

EOC – Munich (GMES)

test environment for Galileo applications
International Space Exploration Coordination Group

Cooperation between all leading space agencies of the world

Europe to find and negotiate its role/contribution in/to global endeavour
In the field of **science and research cooperation with the whole world** guided by principle of scientific excellence

**On mission level** in essence **only activities of direct relevance** for **European programmes/policies** in order to support European independence

**Main public operational capacities** directly linked to **European programmes**

Promotion of **one European Space Policy**, implemented by **clear division** of responsibilities between the European actors

**Support to transparent inner-European coordination** to allow for coherent appearance of Europe in International Cooperation despite variety of European actors (also via Space Council)