aerospace vallée valley

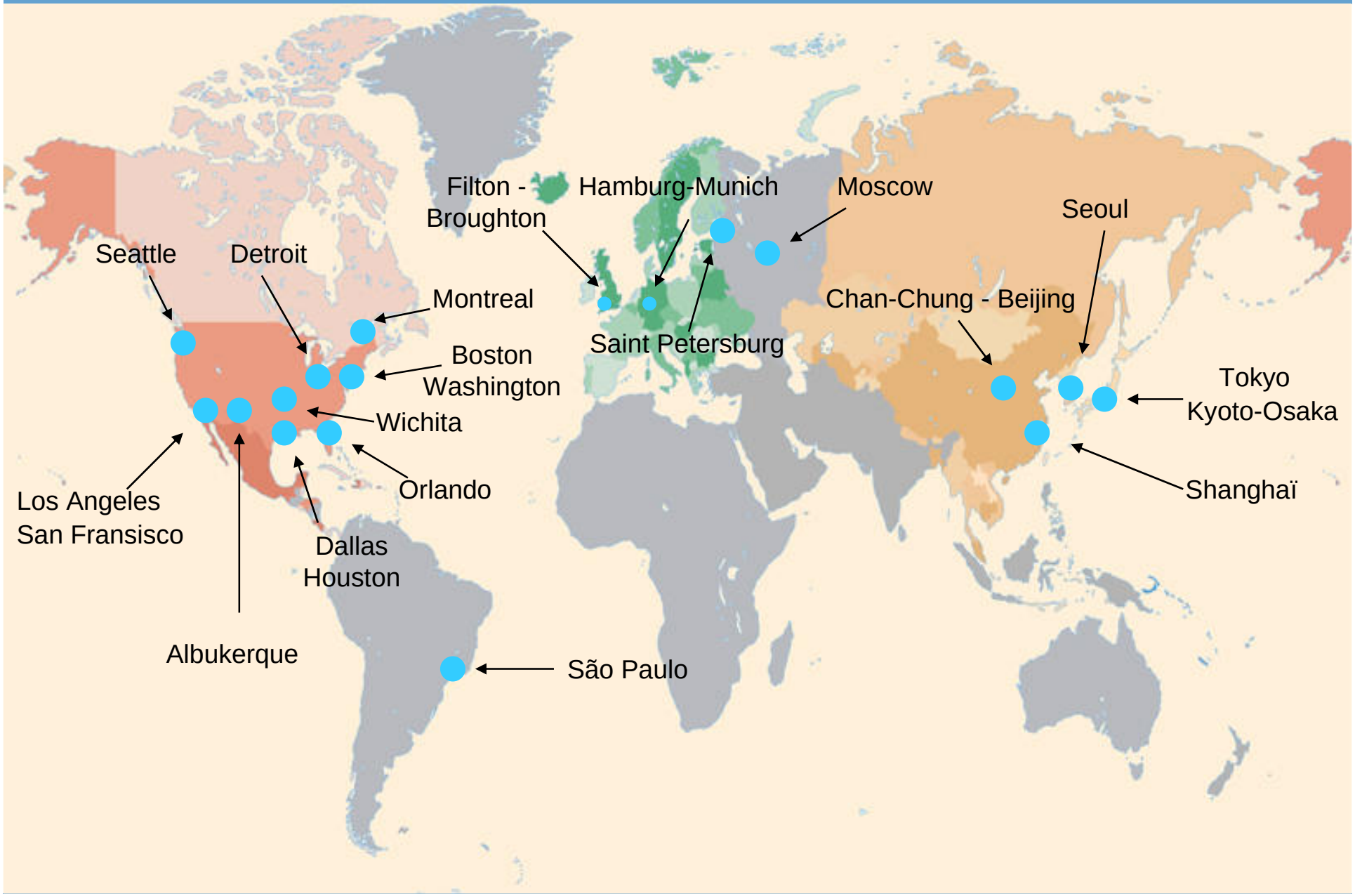
AERONAUTICS

SPACE

EMBEDDED SYSTEMS

COMPETITIVENESS CLUSTER in MIDI-PYRENEES & AQUITAINE

Aeronautics, Space, Embedded Systems:
France with respect to International Competition



Competitiveness cluster
From call for projects to certification

- **Government decision** in the CIADT of **14 September 2004**

  (CIADT = Inter-Ministry Committee for Territory Development)

- **Call for projects** and application circular **November 2004**

- **Submission of application on 28 February 2005** to the *Préfets de Région* (technical evaluation, opportunity evaluation prioritising the projects).

- **Transmission of application dossiers** by the Préfet to the GTI secretary by **31 March 2005** (GTI = Inter-Ministry Working Group)

- **Selection process** steered by the GTI, double expertise:
  - expertise conducted by the services of the ministries concerned
  - independent expertise by external experts

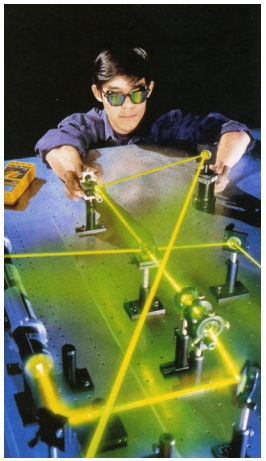
- **Certification of clusters** by the CIADT before **summer 2005**

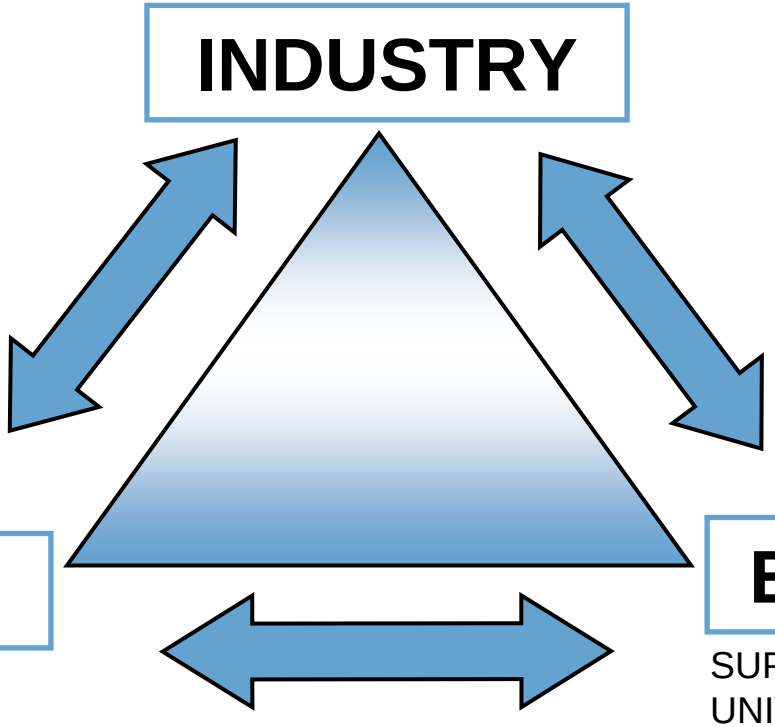
- **After cluster certification, case by case validation and approval of the R&D projects**

The Aeronautics-Space-Embedded Systems Cluster
in Midi-Pyrenees / Aquitaine

Airbus, Latécoère, Dassault-Aviation, Sogerma…
Alcatel Space, Astrium, CNES, EADS ST, SNECMA …
Alstom, Motorola, Siemens VDO automotive, Thales, …

Aeronautics, space and embedded systems represent nearly 100,000 direct jobs in Midi-Pyrenees and Aquitaine





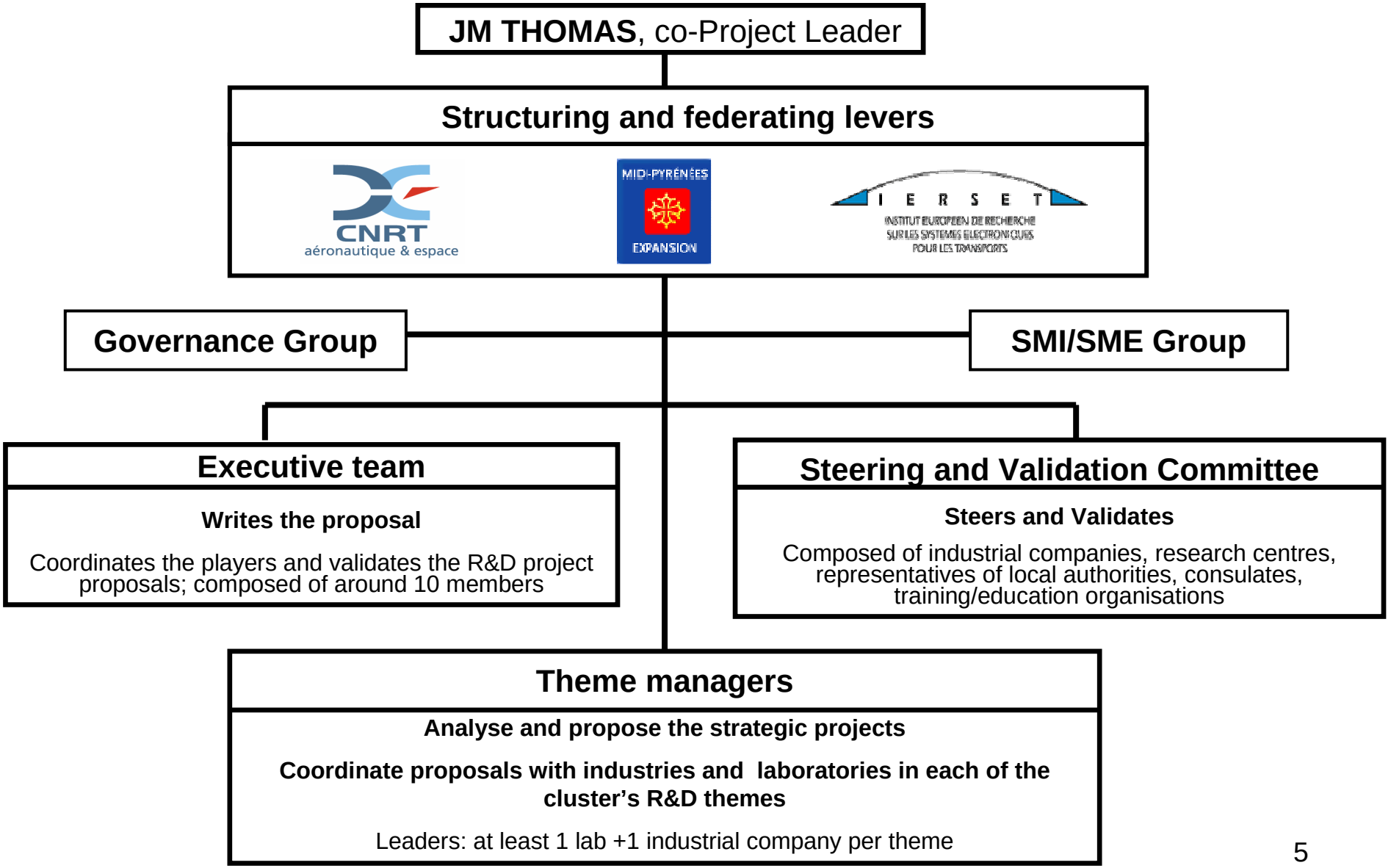
CNRS-LAAS, ONERA-CERT, INRIA, IERSET, CNRT, …

A total of nearly 30,000 private and public researchers, with a high population-researcher ratio

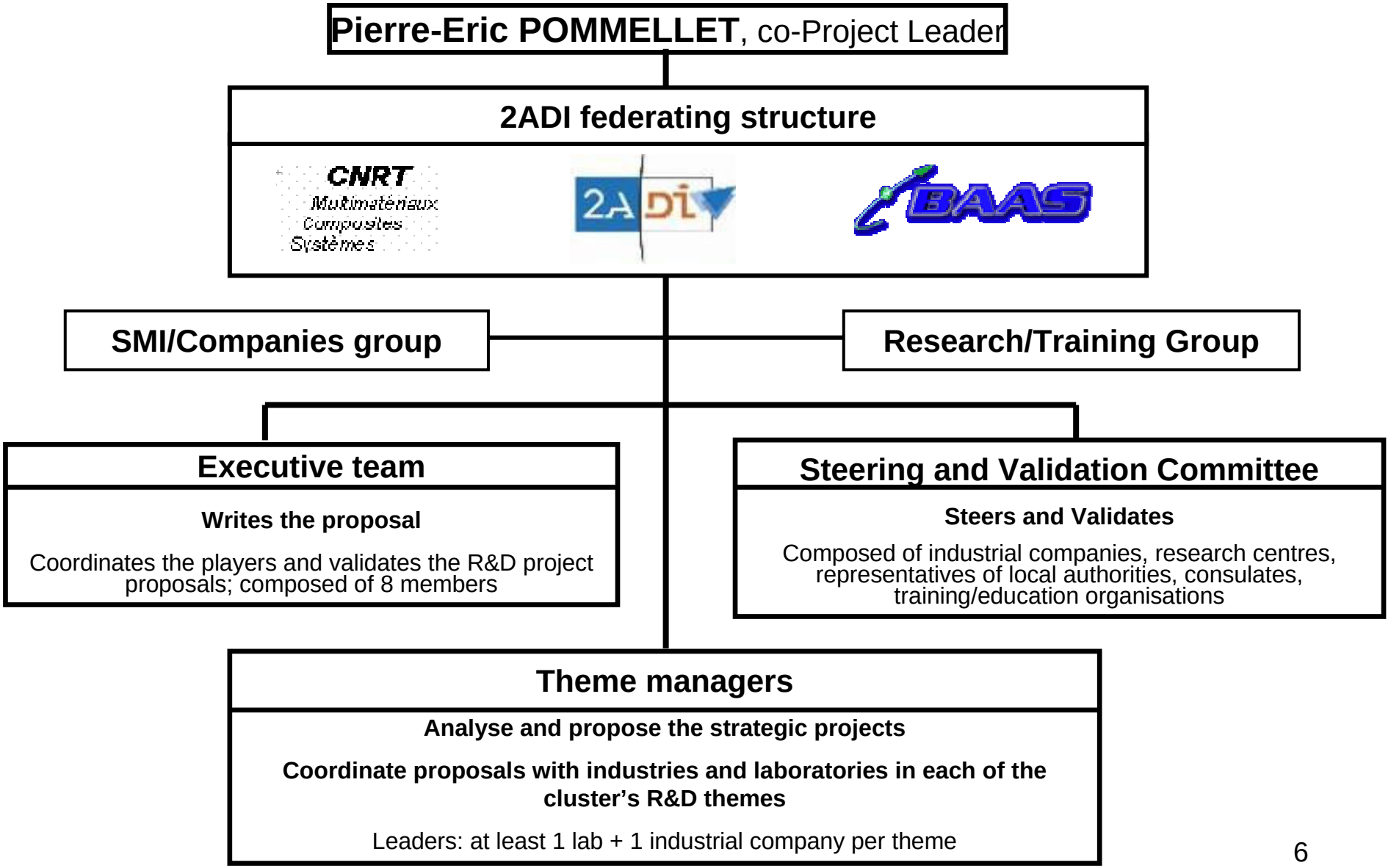
SUPAERO, ENSICA, ENAC, UNIVERSITIES, INPT…

Nearly 180,000 students (all domains), with 3 of the 4 major aeronautical engineering schools of France

Cluster project organisation in Midi-Pyrenees



Cluster project organisation in Aquitaine



The Call for Projects application dossier

5 main elements on the basis of the specification:

- **CLUSTER'S GENERAL STRATEGY AND OBJECTIVES**

  Short and long term vision and objectives, technological and industrial positioning, resources implemented by the players, potential for creating activities, jobs, etc.

- **SITUATION IN TERMS OF ECONOMY AND INNOVATION**

  General description, market, industrial cooperation, threats – opportunities, industry / laboratory relations, initial and continuous training / education

- **CLUSTER SCOPE**

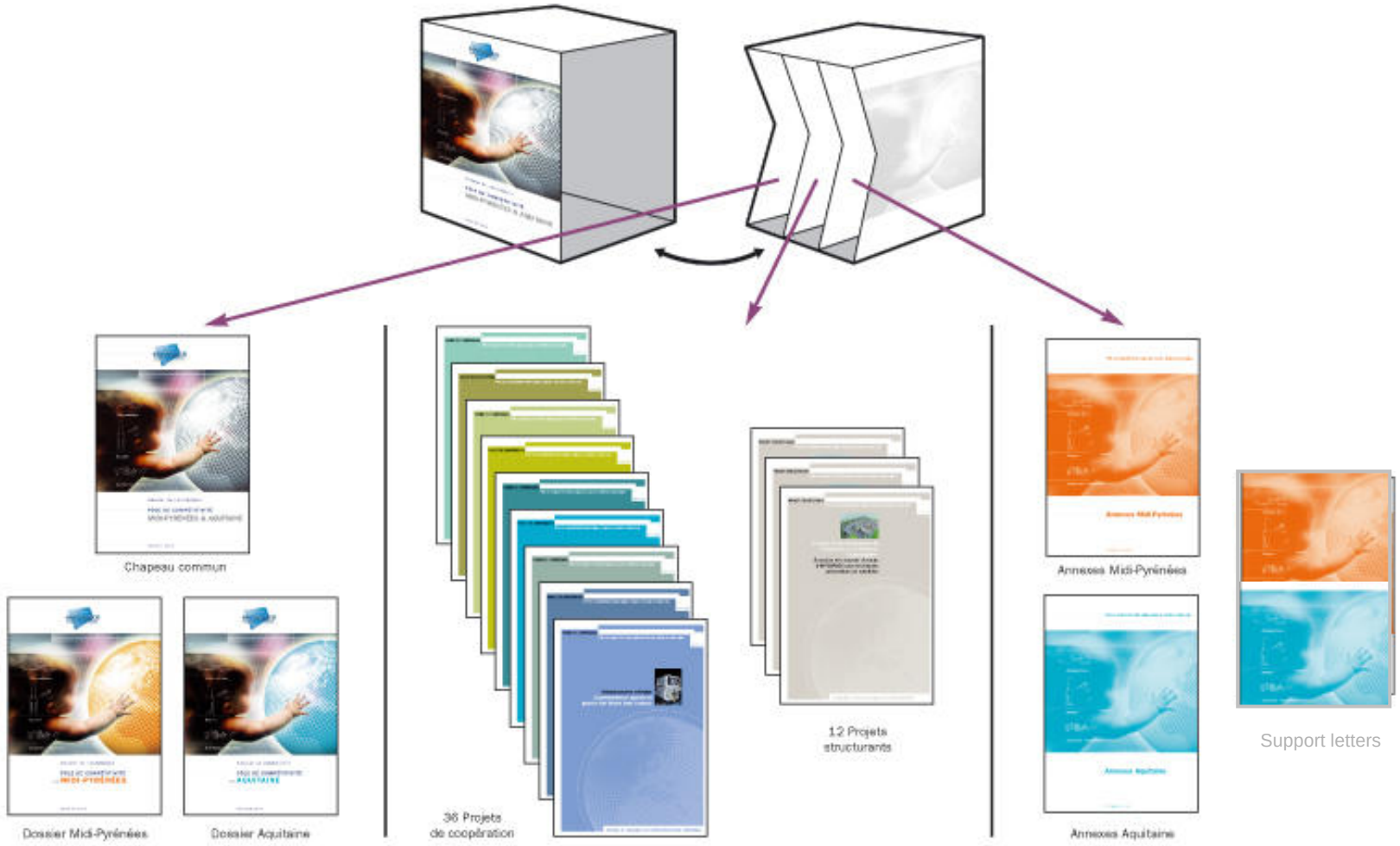
  Identification of cluster project support, cluster positioning in terms of sectors, markets, technologies, participants and involvement, geographical perimeter of the cluster and proposed R&D zoning

- **GOVERNANCE AND STEERING**

  Fonctioning and organisation, possible resources and financing of cluster management, infrastructures, human resources, evaluation, objectives, indicators, timeline, self-assessment, international positioning, territorial marketing, strategic watch, economic intelligence, transfrontier actions…

- **COOPERATION PROJECTS**

Structure of the application documents

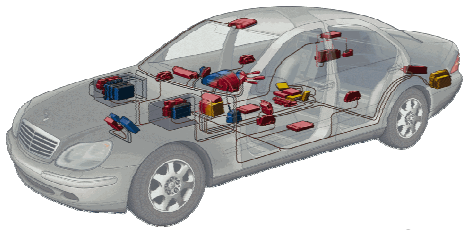


Strategy 2025: major objectives (1/2)

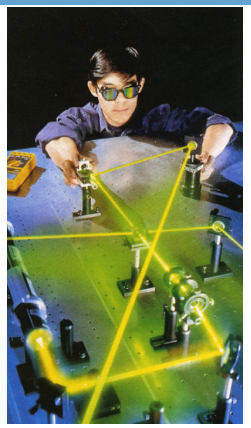
- **Consolidate** the cluster's world number one position in civil aeronautics
  - leading edge technologies
  - indispensable actors in the supply chain

- **Consolidate** the number one European position in the Space domain
  - From launchers to satellite design and space applications

- **Reinforce** a position of excellence in Embedded Systems
  - Aeronautics / Space / Transport synergies



Strategy 2025: major objectives (2/2)



- **Become** a world-wide reference for Research and Education/Training

- **Reinforce** the strengths and synergies of the major corporations and SMEs in the context of international competition
  - anticipate large-scale changes (composites, etc.)
  - accompany the development of companies
  - control outsourcing trends

With the Ambition of creating 40,000 to 45,000 jobs within the next 20 years

Recognised Strengths

World leader in the following markets

- civil aircraft of over 100 seats
- luxury business aircraft
- helicopter gas turbines
- landing gear

European leader in

- satellite construction
- launchers and propulsion
- remote sensing and Earth observation
- cockpit systems
- atmosphere entry technologies
- military aircraft

A leading role in aeronautics maintenance, avionics, test and simulation

An acknowledged mastery of key technologies

- High performance composite materials
- Flight control and systems for aircraft, satellites and drones
- Combustion
- Storage and management of electrical or hybrid power
- Supply chain and concurrent engineering
- Technical data exchange
- Remote maintenance
- Safety and reliability
- Dependability
- Environmental robustness
- Real-time software
- Integrated architectures
- Human/system interfaces and KBE
- Scientific calculation

Scope

Joint Strategic Activity Domains

Energy, Propulsion and Motorisation

Space navigation and atmospheric entry

Aircraft flight management

Maintenance, Services and Training

New generation aircraft materials and structures

1. Aero-mechanics Materials, Structure
2. Energy, Propulsion, Environment
3. Safety and security of air transport
4. Living Earth and Space
5. Navigation, Positioning, Telecommunications
6. Embedded systems
7. Architecture and Integration
8. Maintenance, Services, Training
9. Access to Space and orbital infrastructures

Aeronautics and Environment

Navigation, Positioning, Telecommunications

Safety and security of air transport

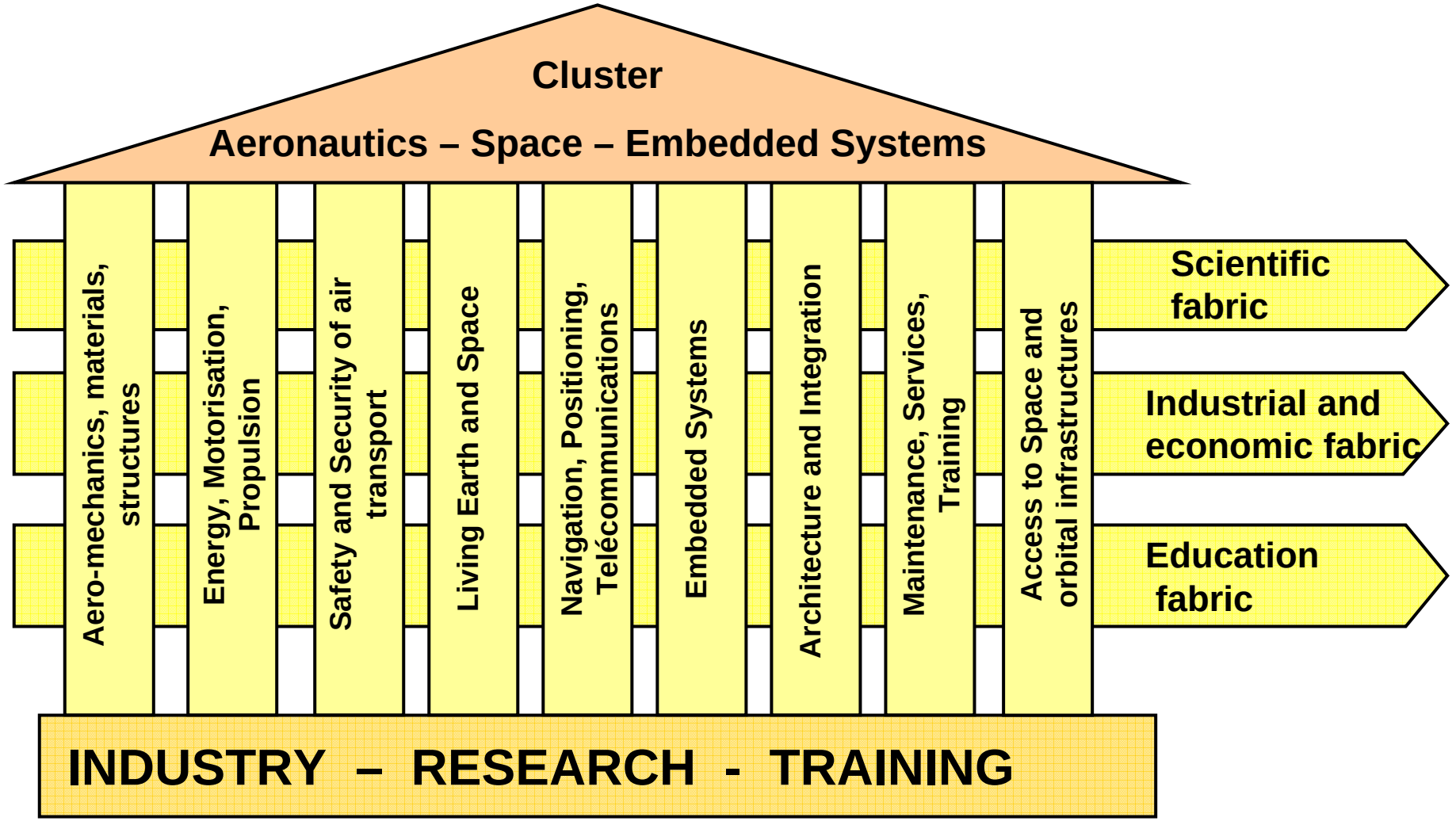
Living Earth and space

Embedded systems

Architecture and Integration

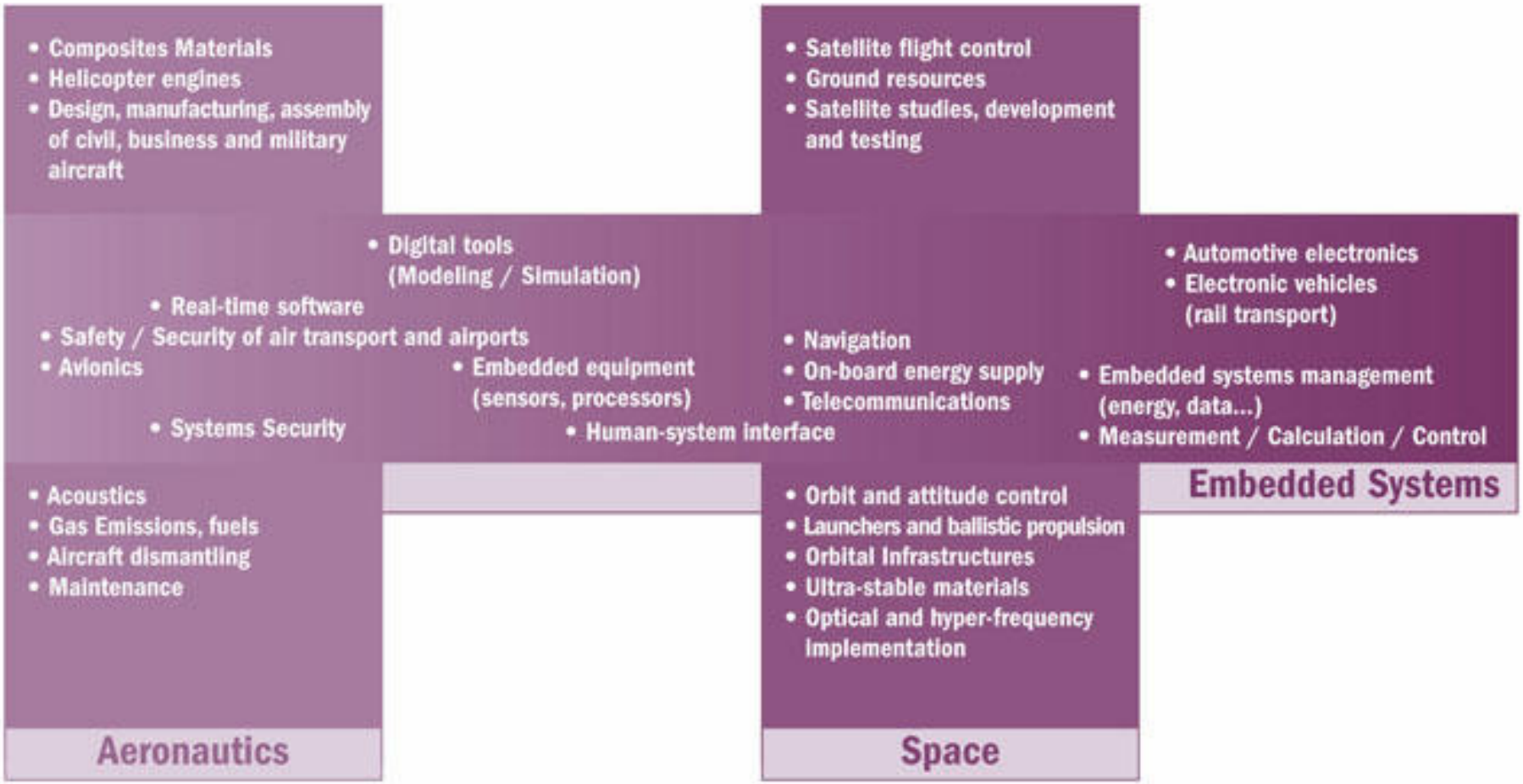
Scope

Strategic Activity Domains (SAD) and Transverse Activity Domains (TAD)



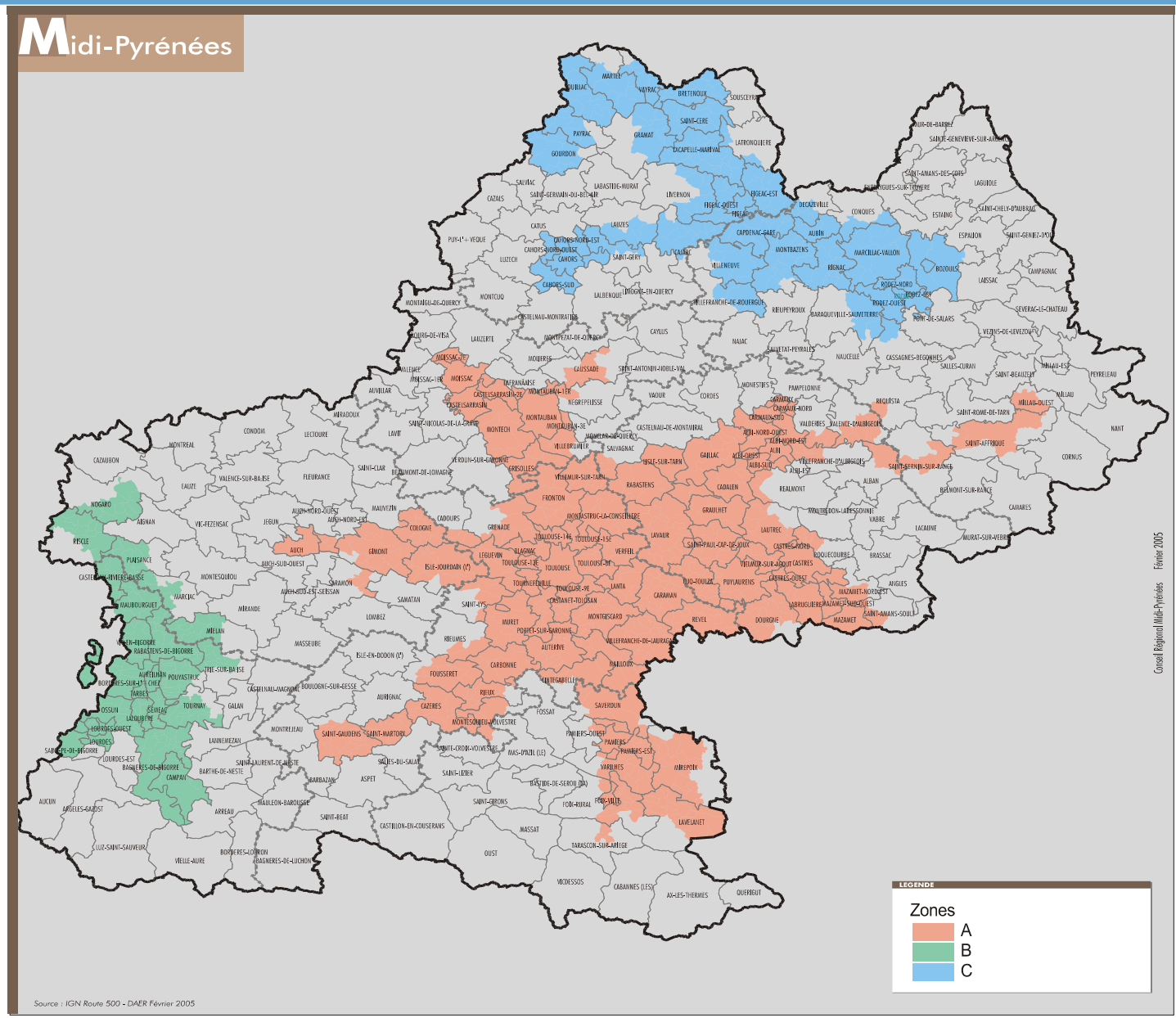
Scope

The main Markets and Technologies



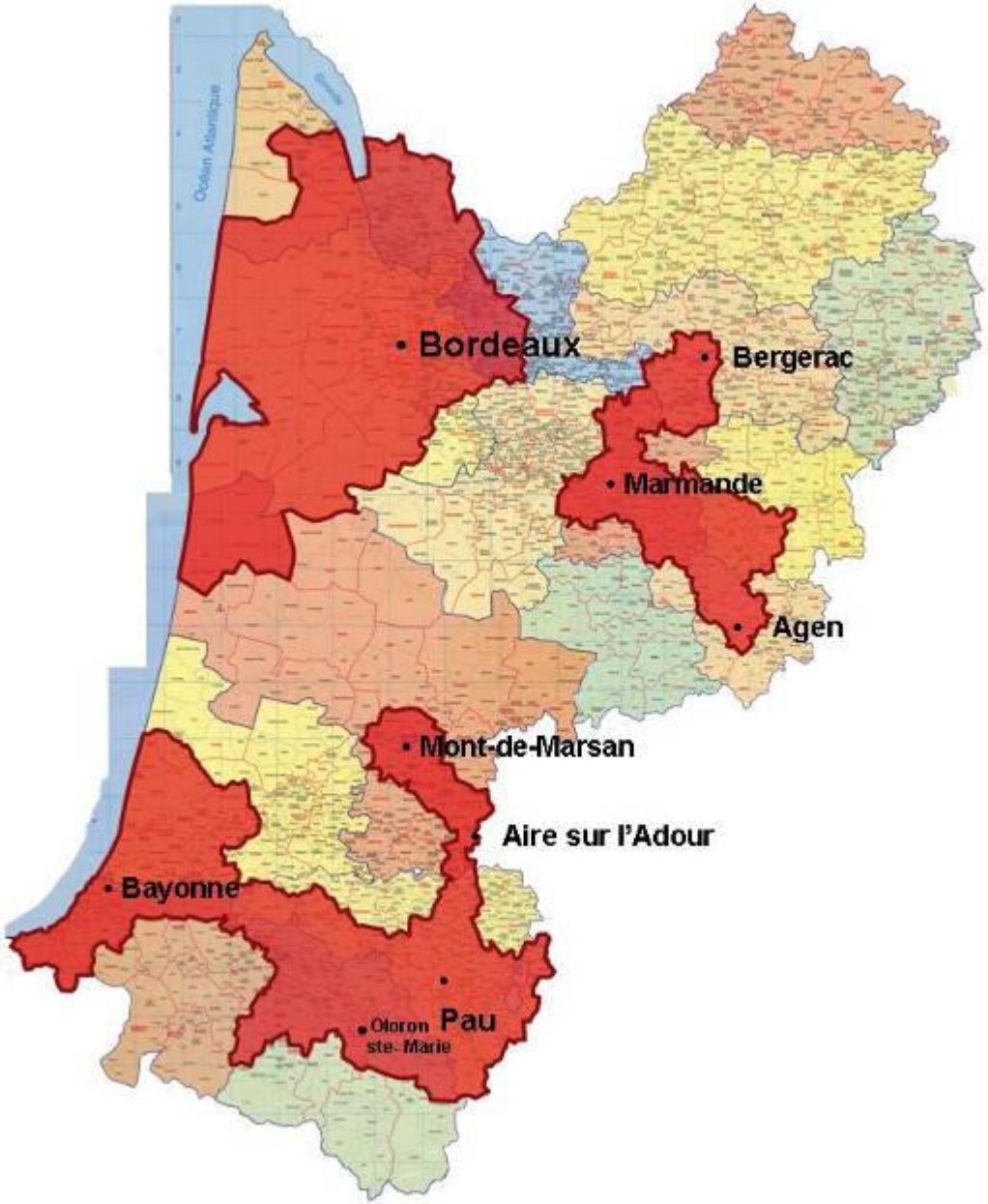
Scope

R & D zoning in Midi-Pyrenees

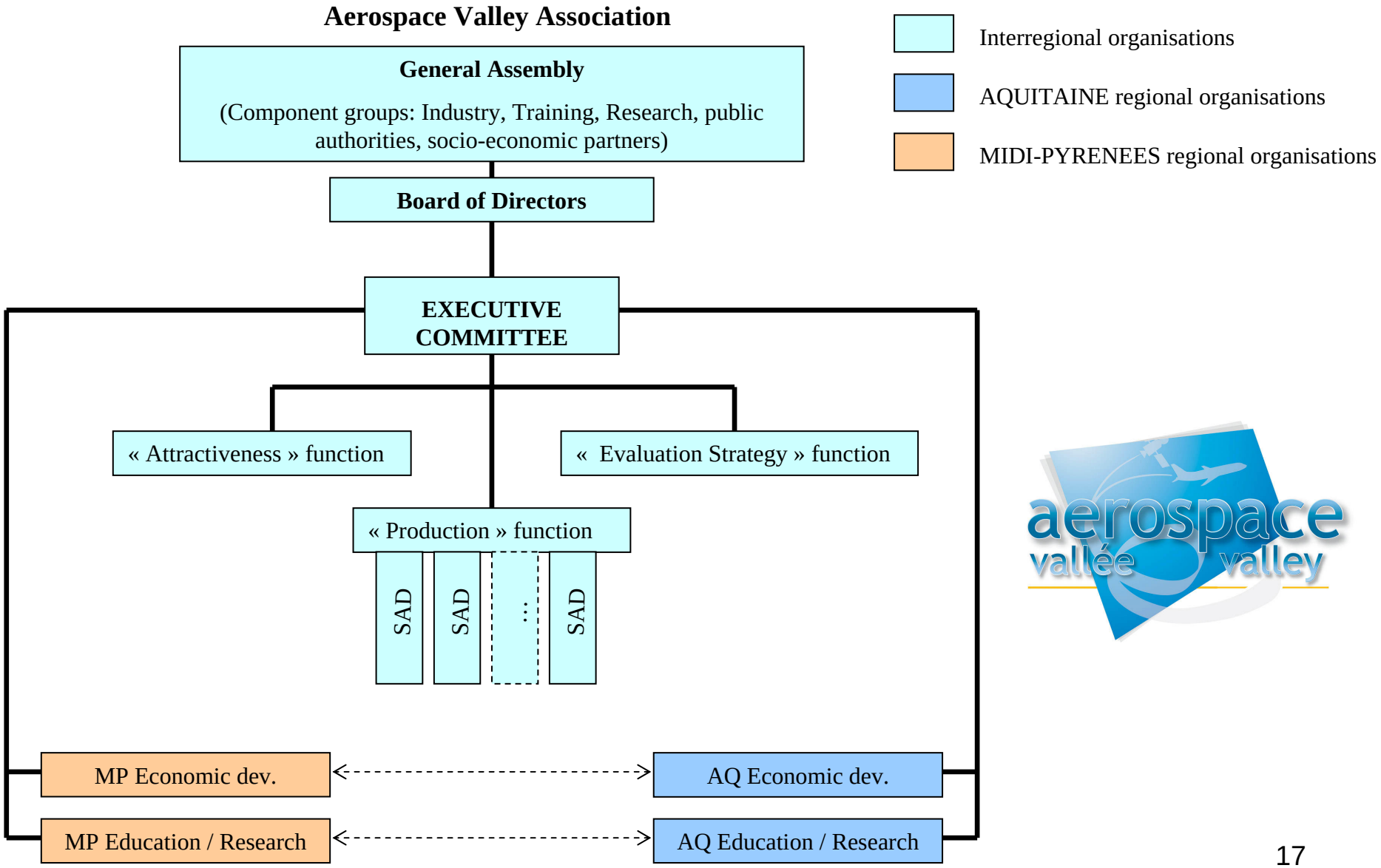


Scope

R & D zoning in Aquitaine

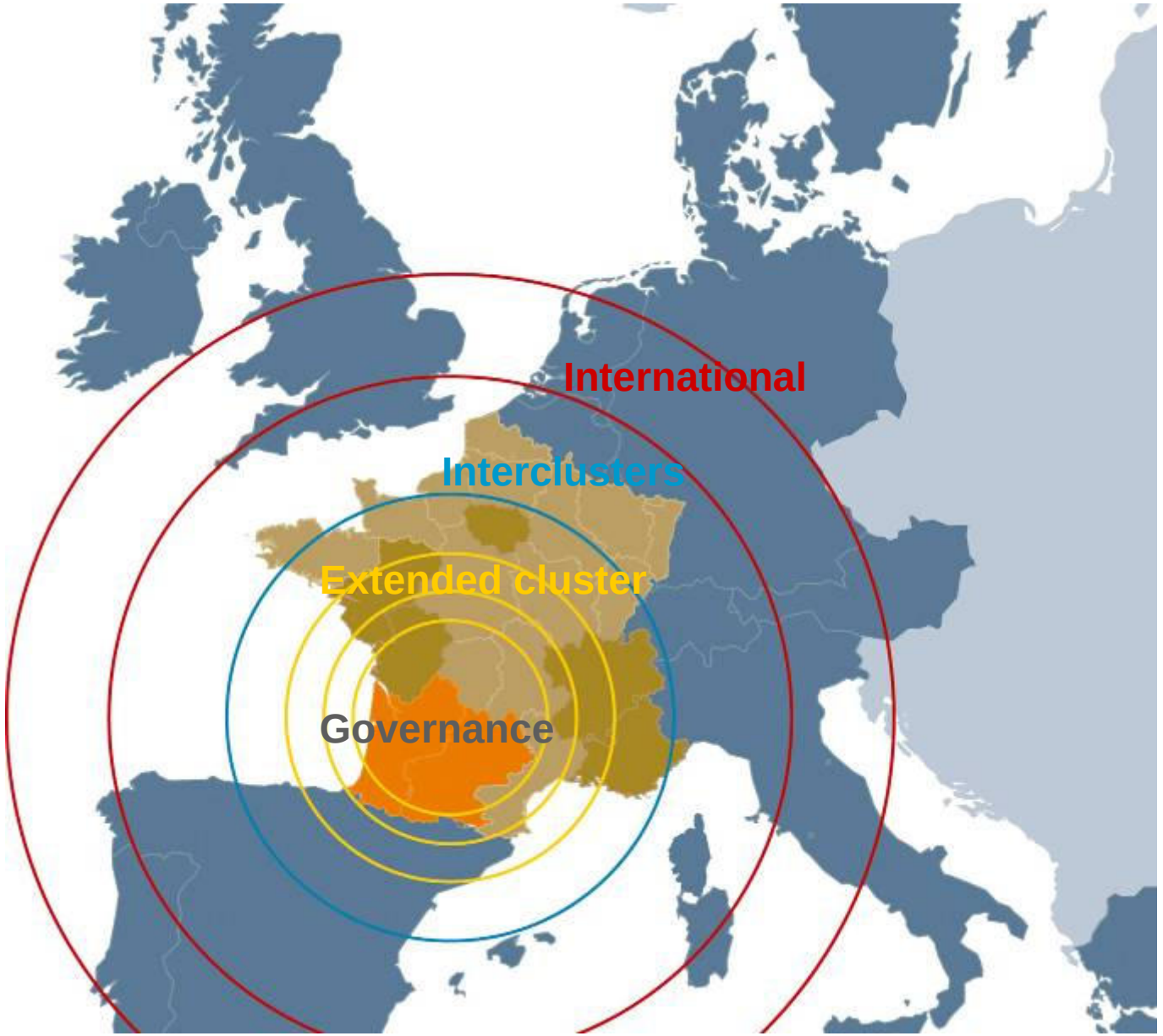


The proposed Governance structure



Scope

Extended cluster / Inter-clusters / International



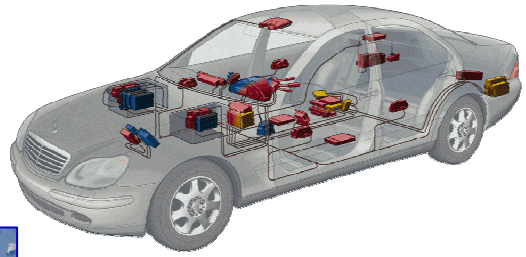
Project structuring

Strategic objectives defined

9 Strategic Activity Domains (SAD)

R&T Federating Programmes

36 initial R&T cooperative projects



3 Transverse Activity Domains (TAD)

Structuring projects

- Territorial
- Economic
- Training / Research

Cluster Project Participants

More than 600 players took part in the constitution of the application dossier and project proposals:

- **Corporations:**

  AIRBUS, ALCATEL, ALSTOM , ASTRIUM, DASSAULT AVIATION, EADS Space Transportation, FREESCALE, LATECOERE, RATIER-FIGEAC, SIEMENS VDO , SNECMA , SNPE, SOGERMA, SPS, THALES, TURBOMECA, etc.

- **SME / SMIs:**

  Epsilon Ingénierie, M3Systems, Delta Technologies, Potez, Examéca, Alema, Creuset, Anyware, Arck Ingenierie, Diatomic, Dystesis, Equipaero, Metod, Novatec, Pall, Pole Star, Pyramis, Schapi, SCT, Slicom, Sofreavia, Sogeclair, Syseca, Tectosag, Visiosat, etc.

- **Institutions:**

  Regional Councils, Department Councils, agglomeration communities,

  Chambers of commerce and development agencies, Professional federations

- **Education / Training & Research Centres:**

  Universities of Toulouse, Bordeaux, Pays de l'Adour and their Technical colleges

  SUPAERO, ENSICA, ENAC, IMA, INPT, INSA, EMAC, ENIT, ENSAM, ENSEIRB, ESTIA, etc.

- **Research and test centres, Research agencies**:

  ONERA, CNRS, CNES, CEA, DGA, CAPE, CEL, etc.

- **International:**

  AIRBUS UK, Rolls-Royce, Cranfield University, DLR, etc.

36 initial technological cooperative projects

- A rigorous selection of domains which contribute a real competitive advantage
- Around 500 participations
- Around 100 SMEs
- Partners in the two candidate regions, but also from other regions.
- Examples of projects:
  - Aeronautics: Future flight controls (CVF), More electric aircraft
  - Space : Planetary exploration vehicles, Services for the surveillance and forecasting of the ocean environment (INFOCEAN)
  - Embedded Systems: Integration of power electronics for land transports and aeronautics (IPAVH)

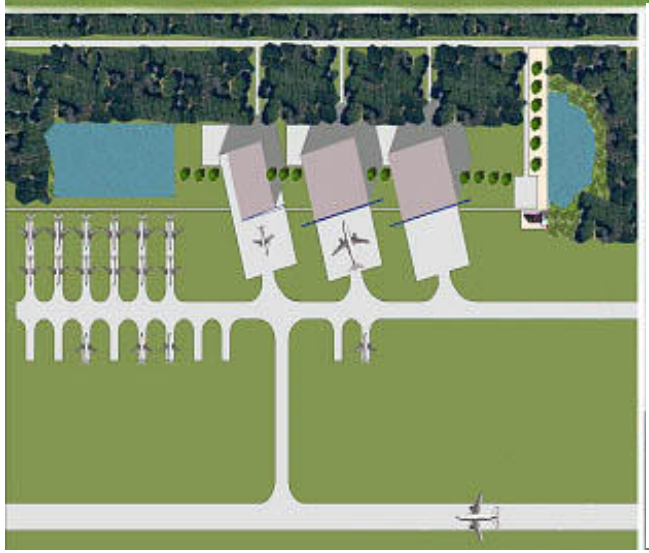
Structuring project:
Creation of a STIC Centre of Competence (INRIA)

- Development in **Bordeaux** of an **INRIA Research Unit** (*INRIA Futurs*) specialised in the design and implementation of information and communications technologies targeting the needs of the Aeronautics, Space and Embedded Systems Industries.

- A **partnership** established in 2005 with **Bordeaux 1, Bordeaux 2, ENSEIRB and CNRS** for the performance of joint projects

- This new Research Unit will at first take **200 people**.

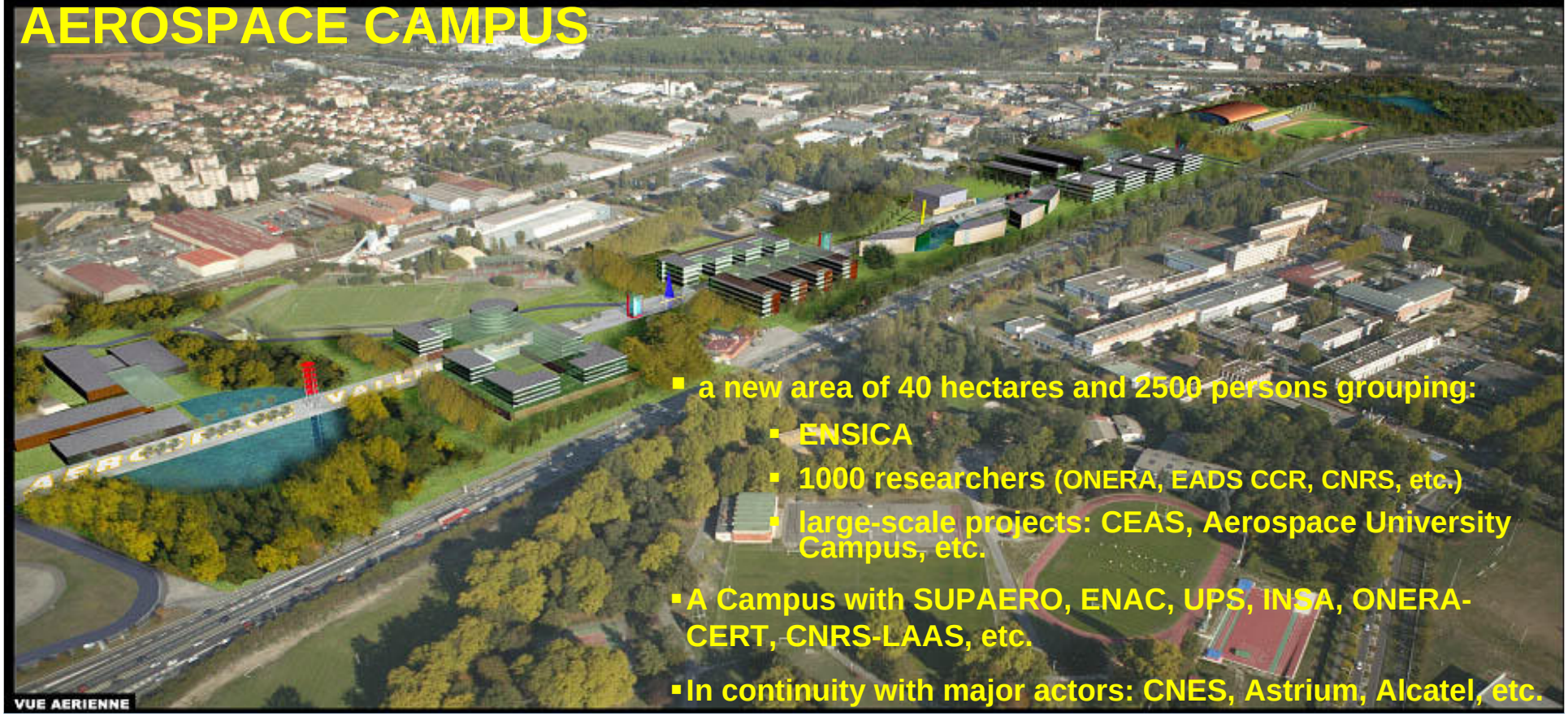
- A **far-reaching international centre for skills associated with information and communications science and technologies** linked to Aeronautics, Space and Embedded Systems.



TARBES dismantling centre

- Civil and military aircraft
- World market of 6000 civil aircraft over 20 years
- 20 then 50 storage areas
- Additional work in light maintenance and painting
- Pre-study via the PAMELA project (LIFE)

AEROSPACE CAMPUS



- a new area of 40 hectares and 2500 persons grouping:
  - ENSICA
  - 1000 researchers (ONERA, EADS CCR, CNRS, etc.)
  - large-scale projects: CEAS, Aerospace University Campus, etc.
- A Campus with SUPAERO, ENAC, UPS, INSA, ONERA-CERT, CNRS-LAAS, etc.
- In continuity with major actors: CNES, Astrium, Alcatel, etc.

Structuring Project: ADER 2 Action themes

- Encourage the emergence of first-tier intermediary companies and strategic SMEs in MIDI-PYRENEES and AQUITAINE

  (CDC / Aerofund, BDPME, Sofaris, Sociétés d'Assurance des crédits)

  → reinforcement of capital funds

  → 3-level system: Equity capital, Equity loans, Guaranteed long-term loans

A TOTAL OF 130 M€

- Improve the industrial and technological performance of the regional subcontracting structure

- Encourage a real forward-looking management of jobs and skills and adapt the initial and continuous training

- Specific tools for economic watch and intelligence in « Midi-Pyrenees / Aquitaine » (AEROMIP, OSEA, Dynamic mapping, etc.)

- Establish, on the basis of the ADIT study, an action plan for the dissemination of the key technologies of the cluster sectors

Structuring Project: Research and Training

- Commitment of **all** the Research and Higher Education **centres of Toulouse Midi-Pyrenees et Bordeaux-Aquitaine**
- Creation of a **thematic** Research and Higher Education Group **(GRES)** federating their institutions and laboratories in **Aeronautics, Space and Embedded Systems**
- **Aeronautics – Astronautics doctoral school** proposing an internationally recognised doctoral education
- Creation of « **Aerospace Campus** » in the Rangueil / Montaudran zone
- International evolution of the Aeronautical schools group (GEA)

RESOURCES

- Collective actions and activities (8M€ / year)
- Enterprises network (4M€ / year)
- Company real estate and housing (550 M€ / CDC)
- Equity capital / repayable advances (300 M€ / year CDC and BDPME – ANVAR)
- International – export aids (1.5 M€ / year)
- Economic watch and intelligence (2 M€ / year)
- Human resources (CEP, EDDF and GPEC bonus)
- Employer groups (50% of starting costs)
- Technology valorisation and transfers
- VDSL (225 M€ / CDC)
- **25% to 30% of government intervention funds directed to the clusters, i.e. around 70 M€ over 3 years**
- + support of local authorities and European structural funds

TAX EXEMPTIONS / REDUCTION OF PAYROLL TAXES

- Only for companies in R&D zones and approved R&D projects

- Company tax exemptions 100K€/ 3 years « de minimis » (for local authorities, possibility of business and /or property tax exemption)

- Reduction of payroll taxes; reduced employer contributions for R&D personnel involved in approved R&D projects:
  - 25% for major corporations
  - 50% for SMEs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