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RÉPUBLIQUE FRANÇAISE

French strategy for research & innovation

Examples of bi- & multilateral international partnerships

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Attache for science & technology
French Embassy in Poland

Conference on "European Research Infrastructures for Innovation and Development"

Wroclaw, June 17th 2010

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Sources :

- **OECD report on Science, Technology & industry (2008)**
- **French Ministry of Higher Education & Research (2010)**
- **Indicators of Sciences & Technology,**

[French] *Observatoire des Sciences & Techniques (2008 report)*

SCIENCE & TECHNOLOGY in France

- **Science** & **Technology**:

- Nobel prizes : **14** in litterature, **14** in biology-medicine, **12** in physics, **7** in chemistry, **9** in mathematics,…

- **TGV** fast trains, **Airbus**, **Ariane** rockets & satellites, nuclear & renewables energies, etc.

- recognized pionners of sciences…or more recently:

2009 Abel prize (Michail **Gromov**)
2008 Nobel in medicine (Françoise **Barré-Sinoussi** et Luc **Montagnier**)
Abel prize (Jacques **Tits**)
2007 Nobel in physics (Albert **Fert**)
2006 Fields medal (Wendelin **Werner**)
2005 Nobel in chemistry (Yves **Chauvin**)
2003 Abel prize (Jean-Michel **Serres**)
2002 Fields medal (Laurent **Laforgue**)
1997 Nobel in physics (Claude **Cohen-Tanoudji**)
1994 Fields medal (Pierre-Louis **Lions** et Jean-Christophe **Yoccoz**)
1992 Nobel in physics (Georges **Charpak**)
1991 Nobel in physiics (Pierre-Gilles **de Gennes**)
etc.

SCIENCE & INNOVATION in France

- Expenses for R&D in % of GDP: 45 (49) *(=> 2.1% of GDP in 2006)*
- Expenses for R&D in companies in % of GDP: 37 (43)
- Risk-capital in % of GDP: 22 (23)
- Patents EU-US-JP per million of unhabitants: 34 (37) *(=> 4.5% of all patents in 2005)*
- Scientific publications per million of unhabitants: 41 (47)
- % of « innovating » companies: 31 (44)
- % of « innovating » companies in services: 38 (51)
- % of companies having cooperations: 58 (57)
- Patents with foreign co-inventors: 31 (14)
- % expenses in R&D financed by foreign countries: 39 (39)
- Scientists per thousand workers: 49 (44)
- Diplomas/degrees in science & engineering in %: 69 (60)
- Jobs in Science & Technology in % of total employment: 78 (77)

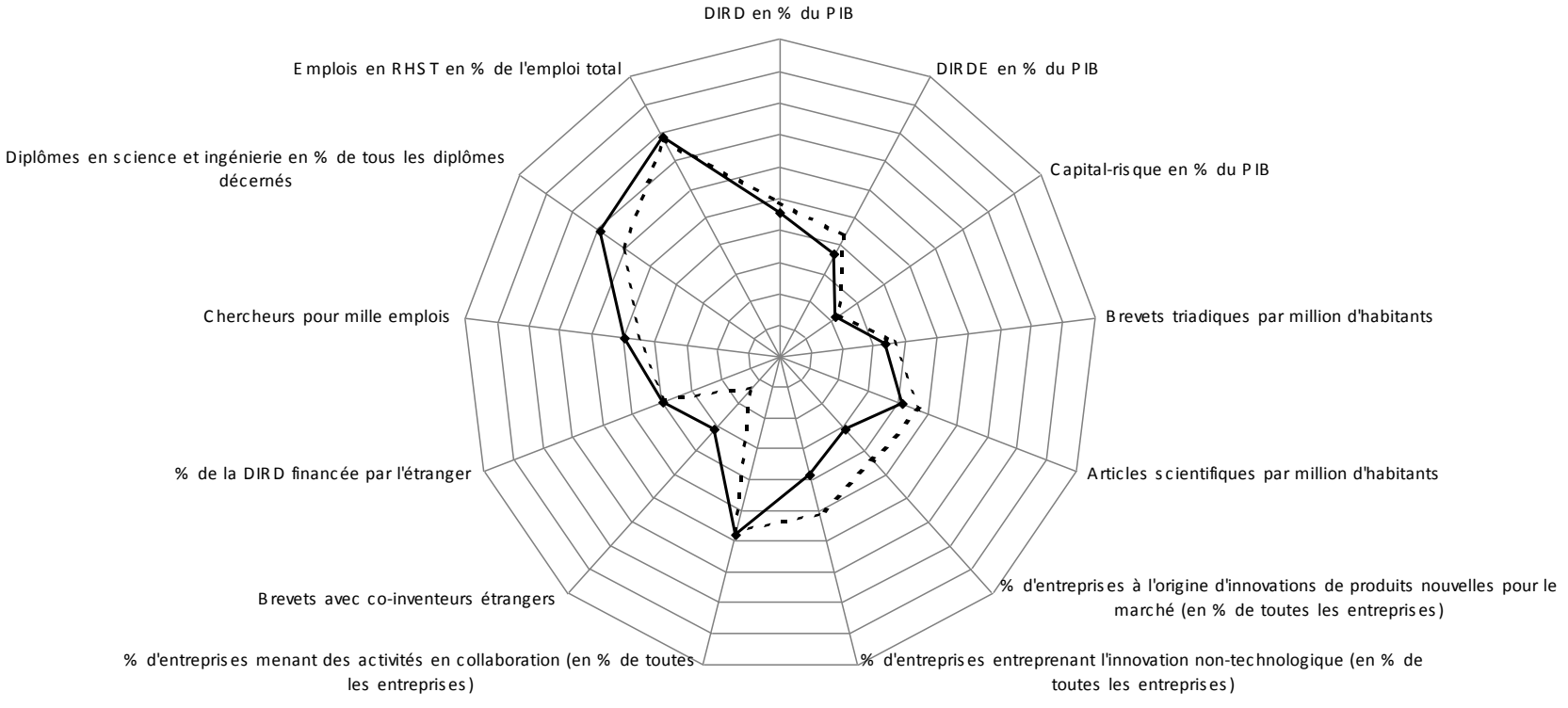
FRANCE

OECD average

(normalized values /100)

SCIENCE & INNOVATION in France

FRANCE very close to **OECD average**



RESEARCH ACTORS

- **25 Public research bodies**

  CNRS, 25 0000 staff, all domains
  CEA, 15 000 staff, alternative & atomic energies
  INSERM, 5 000 staff, life sciences
  INRA, 5 000 staff, agronomy
  CNES, 3000 staff, space
  + INRIA (applied maths), IFREMER (oceanograpghy), BRGM,…

- **Higher education institutions**

  85 [state] universities
  + independantly managed Engineering & Business schools (*Grandes Ecoles*),…

- **Private Research:** companies and foundations

- Many **joint laboratories**

  1200 CNRS-Universities and CNRS-compagny joint laboratories, 140 INRA-CNRS, 62 CEA-Research Performing Organization, etc.

HUMAN RESSOURCES & EXPENSES

- HUMAN RESSOURCES: **352,000 staff**

  - **197,000** working for research in private labs (includes 106,000 scientists)

  - **155,000** working for public research including
    - 57 000 faculty members in universities
    - 42 000 scientists in public research institutes

  - **12,000 new doctors (PhD) every year** (4,000 in natural sciences and 8,000 in humanities and social sciences)
  - **30,000 new engineers (MEng) every year**

- EXPENSES **for R&D:**
  34 billion EUR (national expenses)
  32 billion EUR (internal expenses**)**

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POLICY & PRIORITIES

- Structures
- Human resources
- Funding
- **New policy and priorities :**
  - **research Act *(2006)***
  - **Law for autonomy of universities *(2007)***

⌘ New policy and priorities :

⌧ research Act *(2006)*

goals:

- more strategy
- build a unified assessment system
- promote cooperation between French researchers
- bigger structures
- more public funds for human resources (more attractive careers)
- stimulate innovation and research in private companies
- be an active actor of the European Research Area

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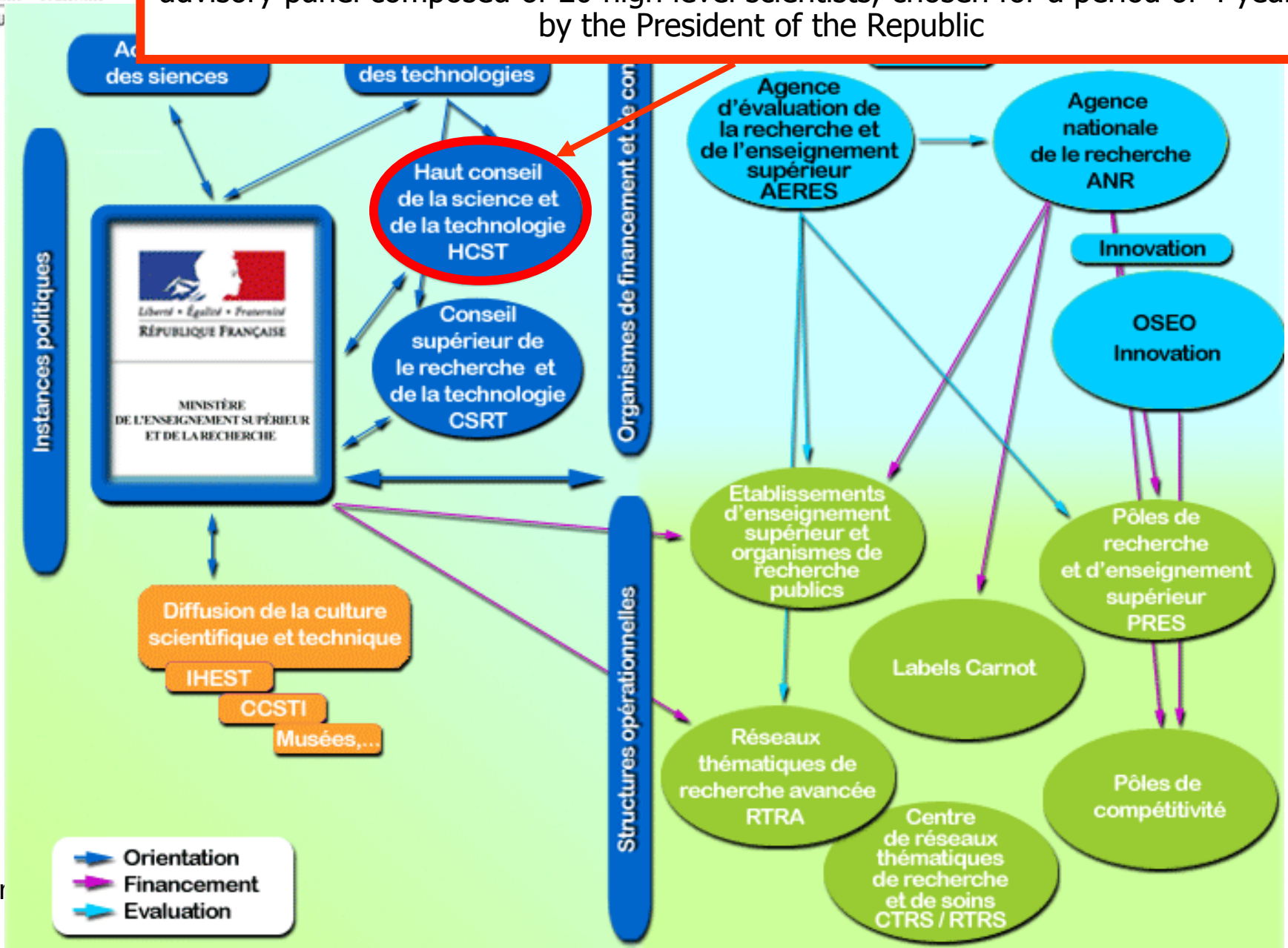
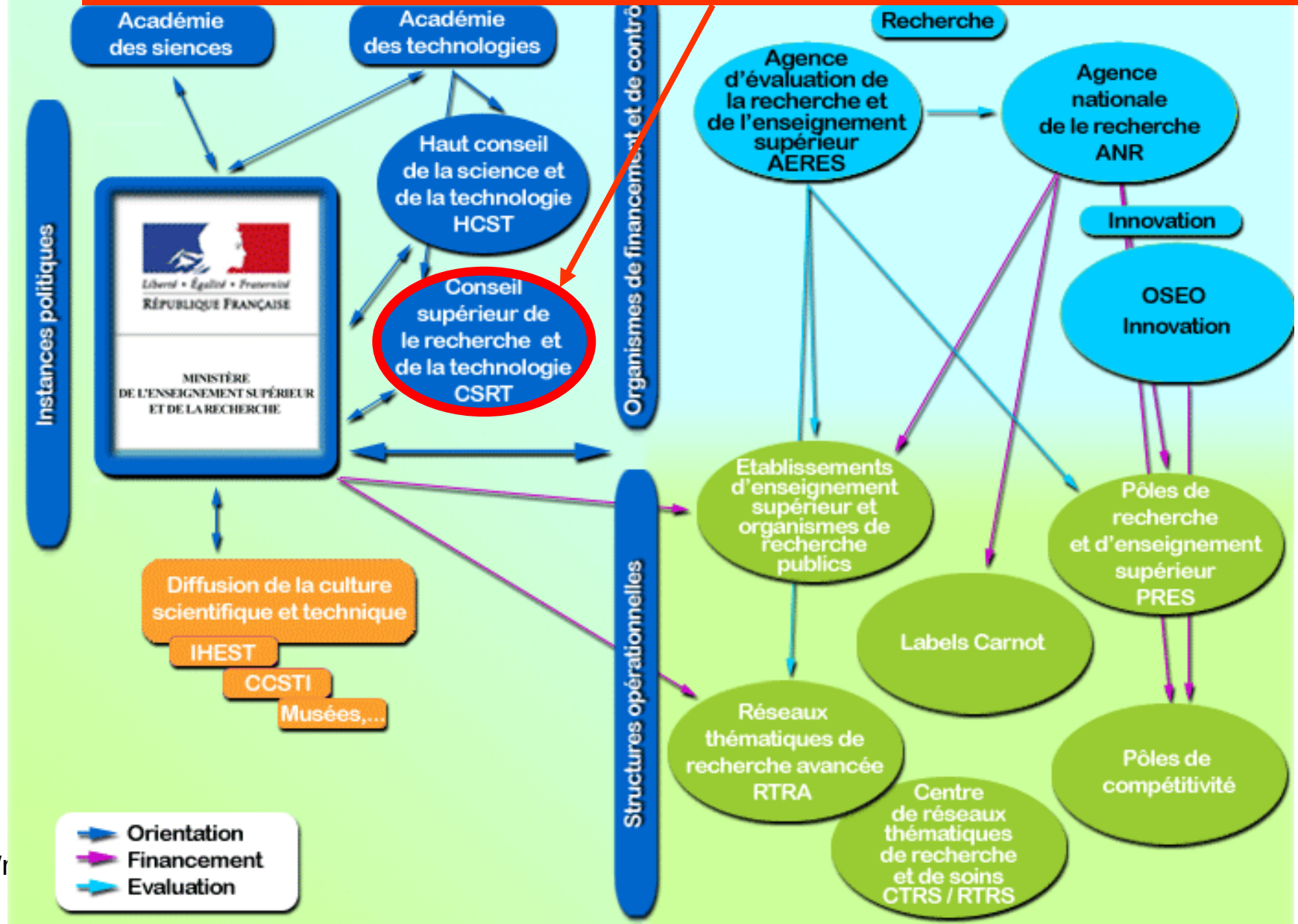
- **NEW: "Council for science and technology"**

advisory panel composed of 20 high level scientists, chosen for a period of 4 years by the President of the Republic



- **NEW: "Inter-ministry committee of science & technology"**
  consultative panel of Ministers



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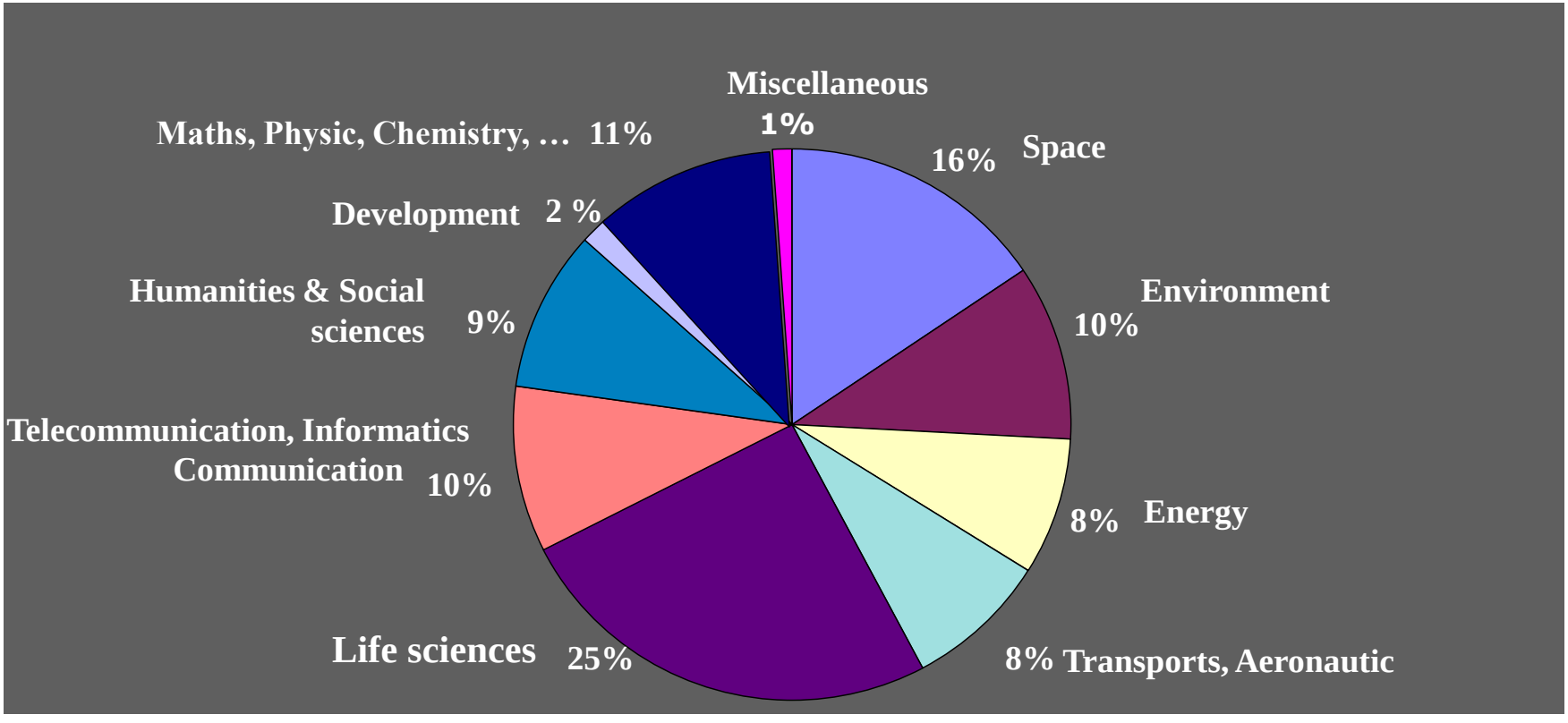
1st priority: more strategy thematic distribution of public funding



Priority sectors (Ministry of research)

- Life sciences: cancer, elderly people, handicaps, new diseases.
- ITC.
- Energy, transports
- Management of resources (agriculture and food security; water resources)
- Other priorities: space, micro and nanotechnologies …

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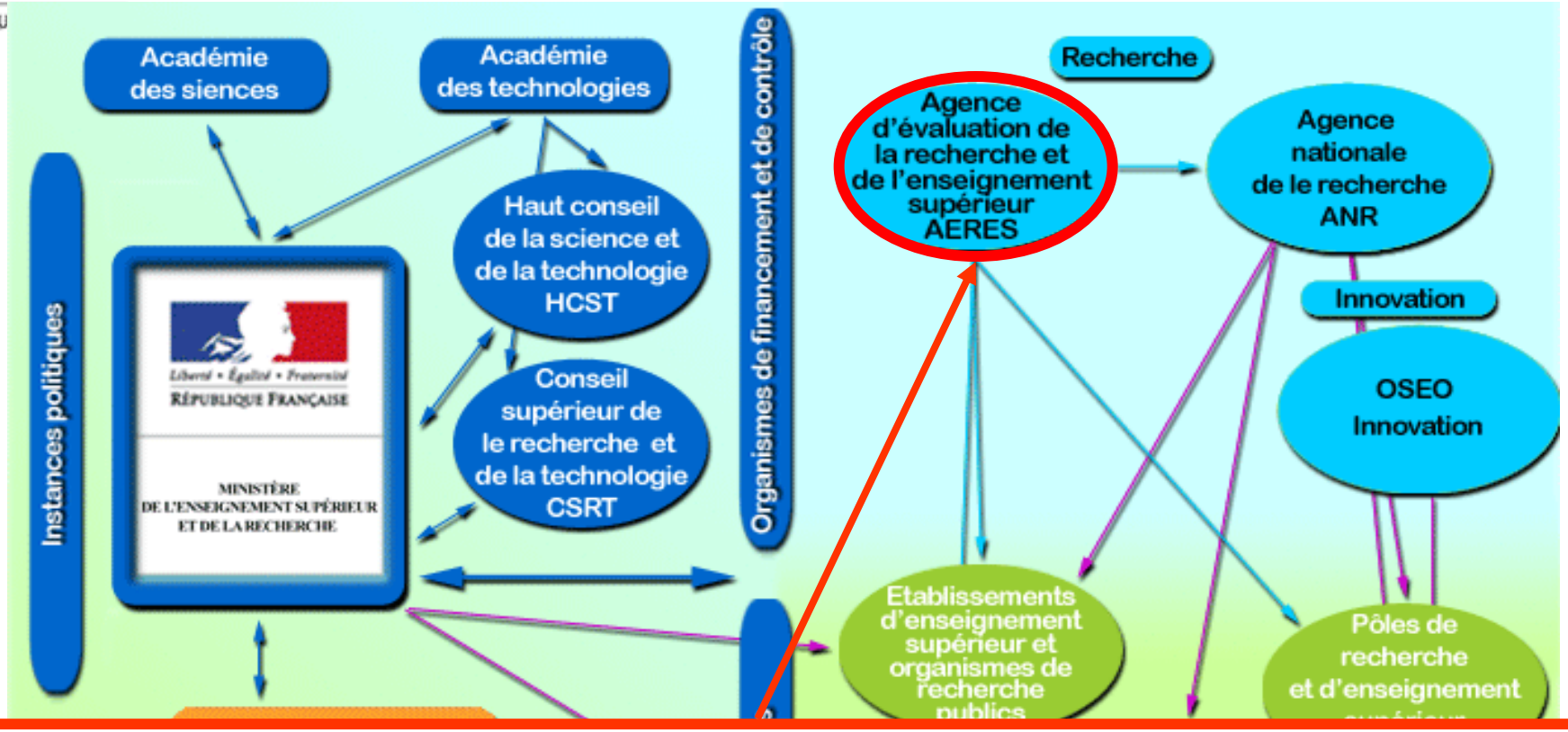

- **"Agency for Research and Higher Education Assessment" (2007)**

Composed of 24 French and foreign members (1/3 from private research)
(controls assessment committees of research institutions)
Assessment of public research
Assessment of all Higher Education institutions (contents and degrees/diplomas)

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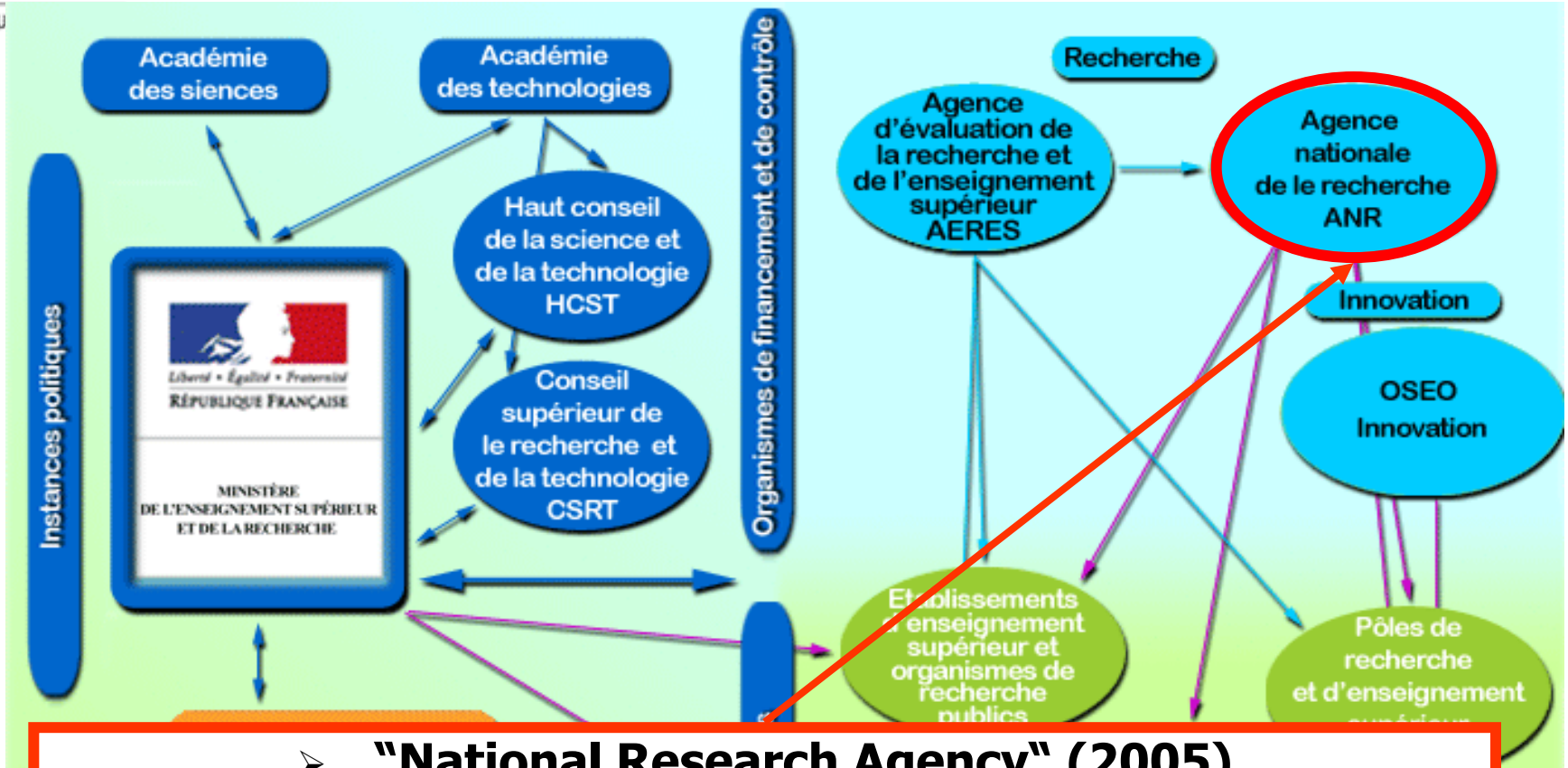

- **"National Research Agency" (2005)**

Funding of both fundamental research and technological research in partnership with private companies through 3-year projects

Projects funding through open and targeted calls for proposals
~1 billion EUR in 2010 / light structure (60 staff)

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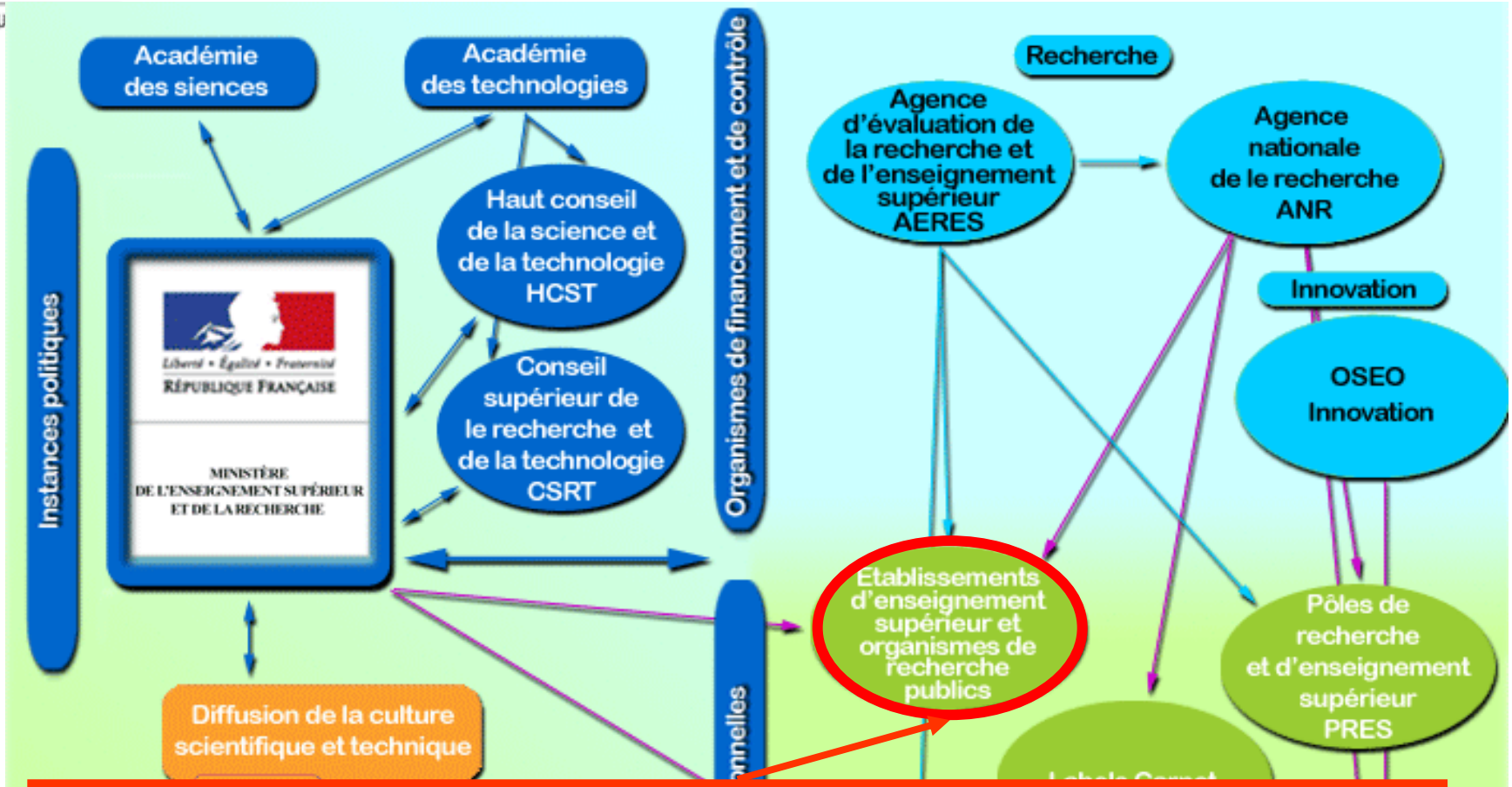

- **"Law for autonomy of [state] universities" (2007)**

More autonomy

Board of Governors extended to external members (industrials,…)

Foundations linked with universities

New mechanisms for the election of the president/rector

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5th PRIORITY: bigger structures

A - *Pôles de Recherche et d'Enseignement Supérieur* (PRES)

Clusters of Academic institutions (e.g. Paris Institute of Technology « ParisTech »,...) **80 M€** (9 clusters)

B - *Réseaux Thématiques de Recherche Avancée* (RTRA)

Advanced research foundations (IT, life sciences,...) **200 MEUR/year** (13 foundations)

C - *Instituts CARNOT*

Private-public R&D clusters (institutions & companies) **60 M€/year** (33 clusters)

- D - Pôles de compétitivité

Private-Public competitive clusters (e.g. « *Digiteo* » in Greater Paris,...) **500 M€/year** (71 clusters)

***- E - Centres Thématiques de Recherche et de Soins (*CTRS)**

Advanced health centers

POLICY & PRIORITIES

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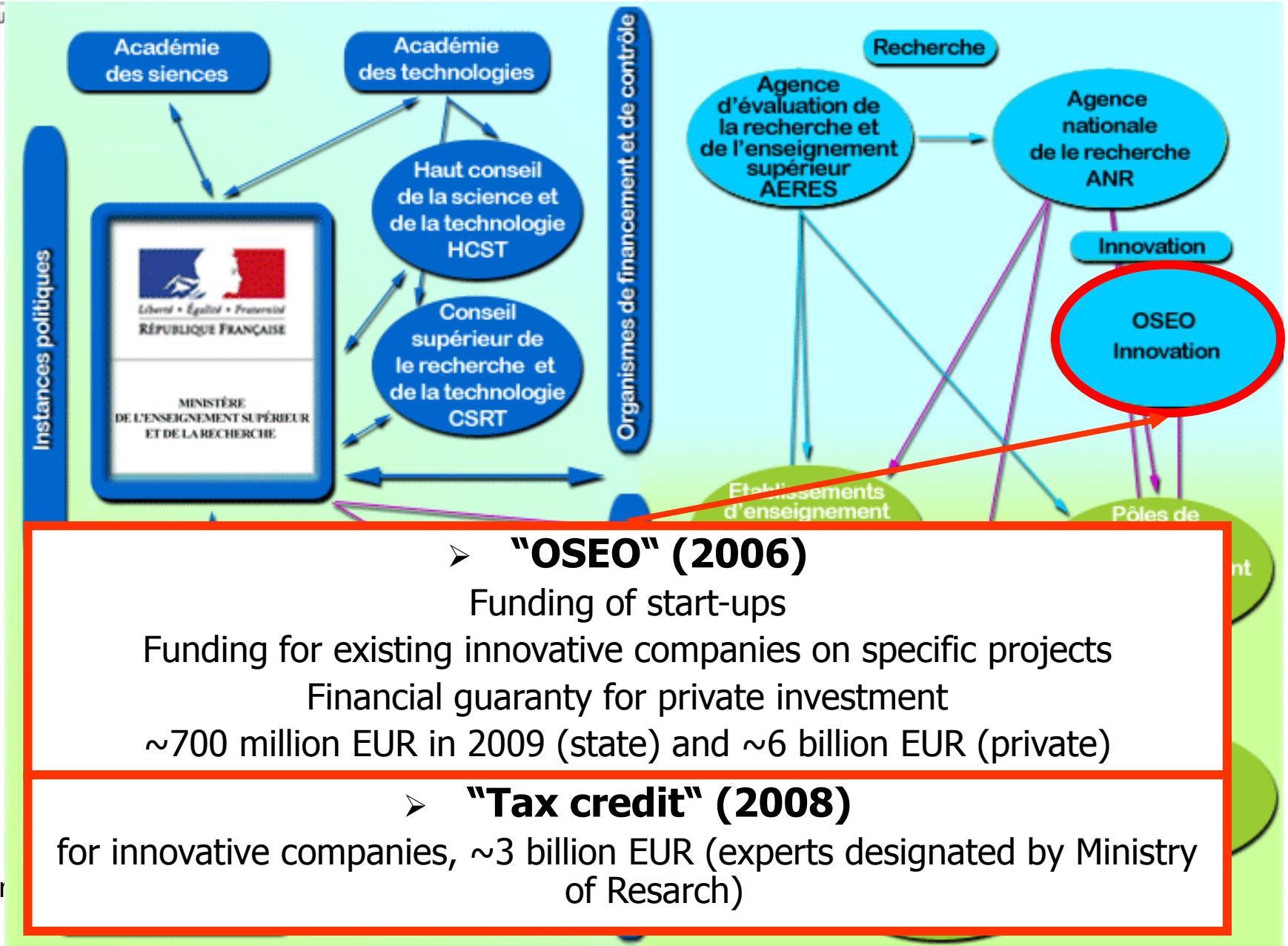


- **"OSEO" (2006)**

Funding of start-ups

Funding for existing innovative companies on specific projects

Financial guaranty for private investment

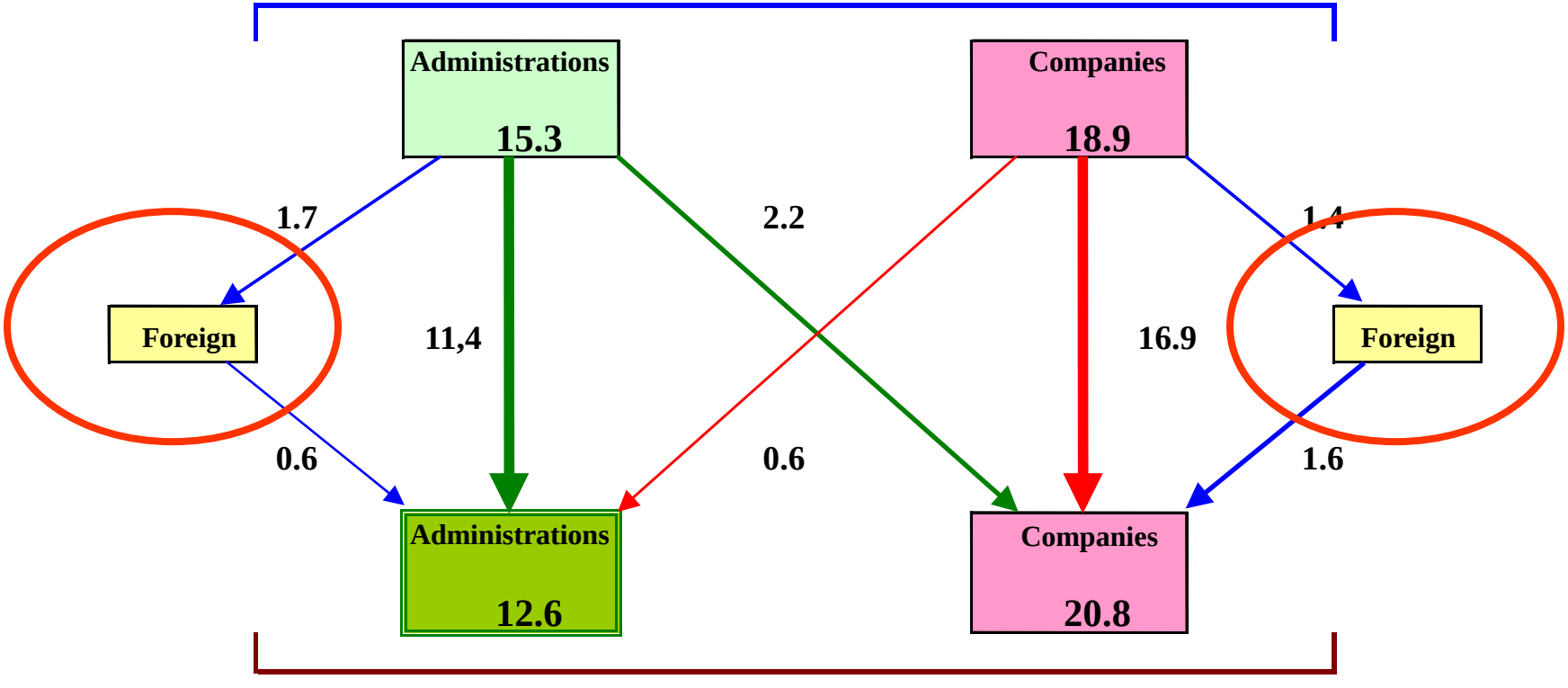
~700 million EUR in 2009 (state) and ~6 billion EUR (private)

- **"Tax credit" (2008)**

for innovative companies, ~3 billion EUR (experts designated by Ministry of Resarch)

FRENCH R&D FUNDING AND EXPENSES

FUNDING: national expense for R&D = 34.2 billion Euros



ACHIEVED: internal expense for R&D = 33,4 billion Euros

Examples of bi- & multilateral international partnerships

BILATERAL

- Joint labs of French public research bodies with foreign public institutions :

  CNRS, INSERM, Institut Pasteur,… (many countries BUT not Poland)

- Joint labs of French [major] companies with foreign public institutions :

  THALES, Essilor, … (many countries BUT not Poland)

MULTILATERAL

- organizations: CERN (high energy physics), ESO (astronomy), ESA (space),…
- projects : ITER (fusion), Jules-Horowitz reactor (fission),…

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DZEKUJE BARDZO

Thank you for your attention

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