

Atom, from research to industry

cea

Defense

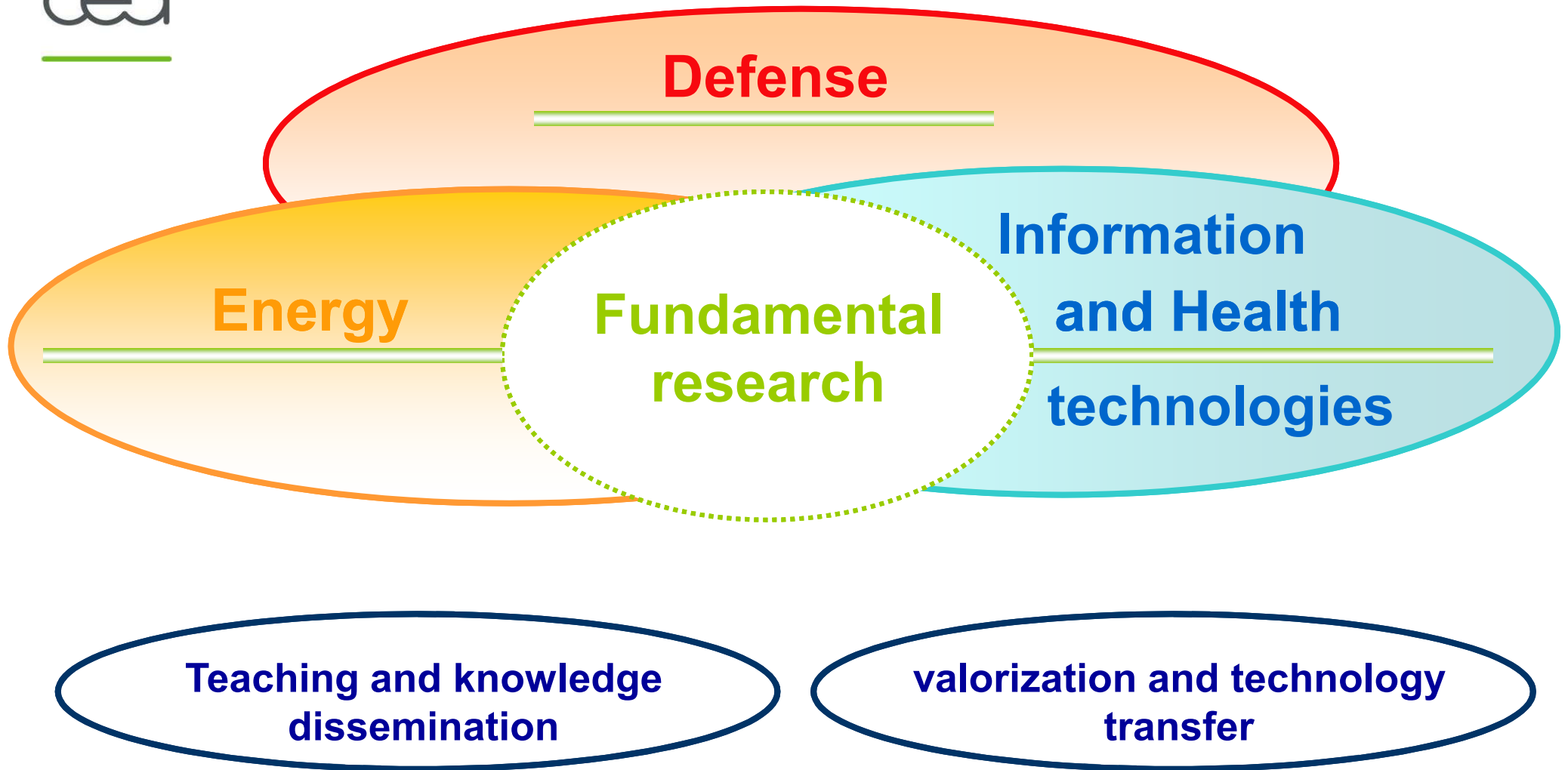
Energy



Information and health technologies

CEA, French atomic energy commission

CEA programs : diversity and coherence



CEA : Organization



General Management

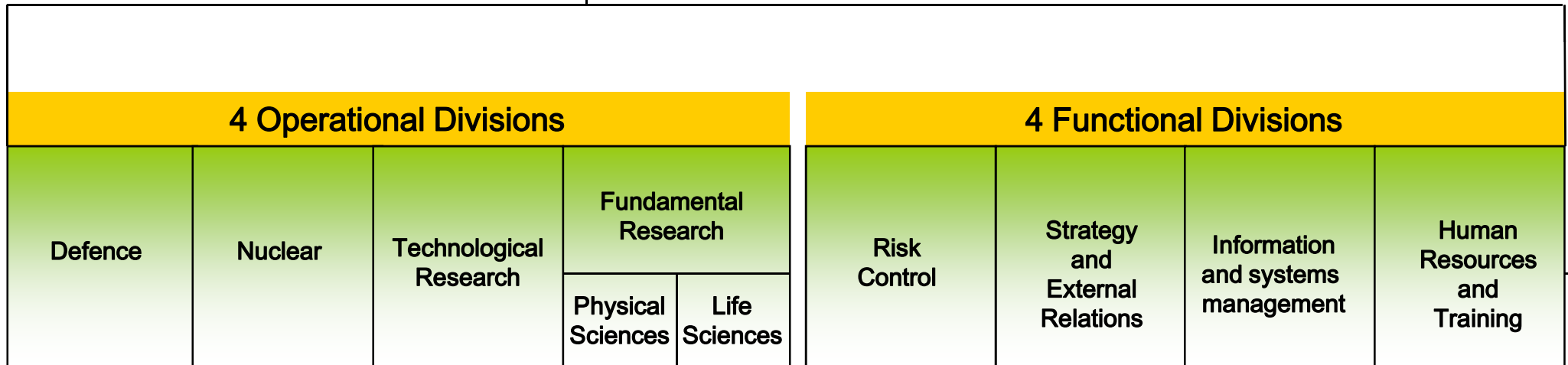
Bernard Bigot
Chairman and
Chief Executive Officer

Hervé Bernard
Deputy CEO

High Commissioner for Atomic Energy

Bernard Bigot

National Institute
for Nuclear
Sciences
and Techniques



Civilian CEA key figures



✓ **11 133 employees**

✓ **Budget: € 2BN, including €917 M in subsidies**



✓ **3 796 scientific publications in 2006**

✓ **1147 PhD students**

✓ **447 priority patents filed**

✓ **1608 delivered priority patents in portfolio**

✓ **667 active partnership agreements with industries**

✓ **364 current licence agreements**

✓ **109 spin-off start-ups created from the CEA from 1984 to 2008**

(2007 data, unless otherwise specified)

INSTN -National Institute of Nuclear Sciences and Techniques



M-Tech teaching under the responsibility of the ministries in charge of research and industry



Missions:

Provide highly specialised training focused on nuclear sciences and techniques
Facilitate relationships between research and industrial organisations in the field of research

26 master degrees (3 in english, nuclear engineering, molecular imaging and fusion)

INSTN key figures

- 114 permanent staff
- 1,200 researchers-lecturers and experts
- 7,000 trainees per year in ongoing professional training
- 600 students per year in initial qualifying training programmes



The PhD programme at CEA

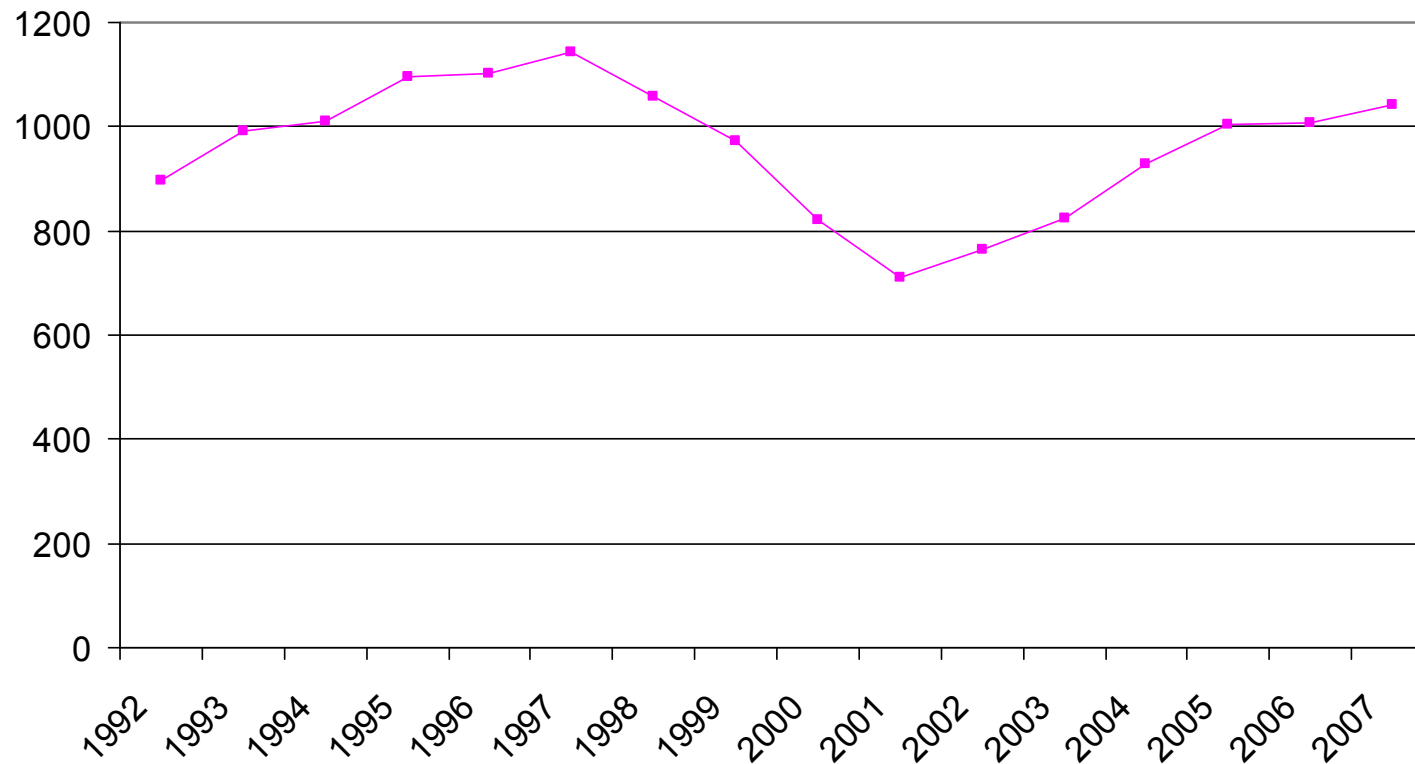
Own PhD programme (100 contracts per year) : monthly salary

1800 euros/month net for 3 years

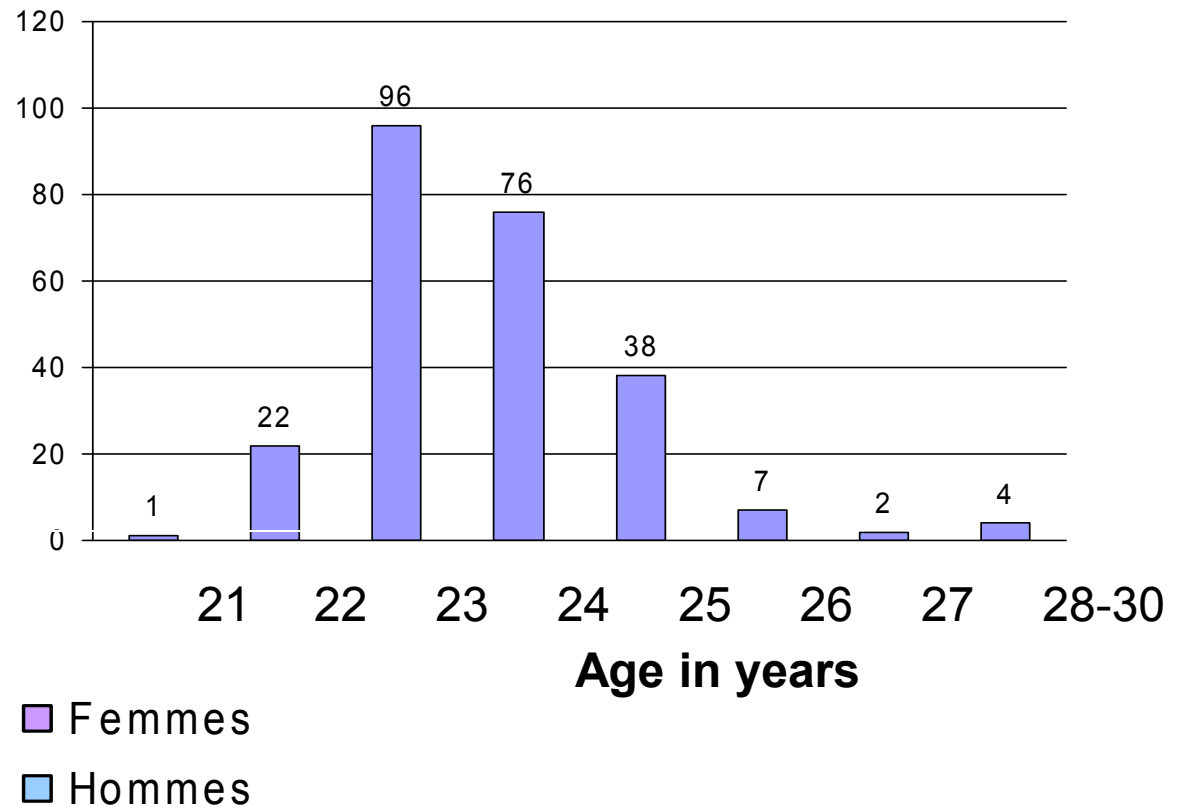
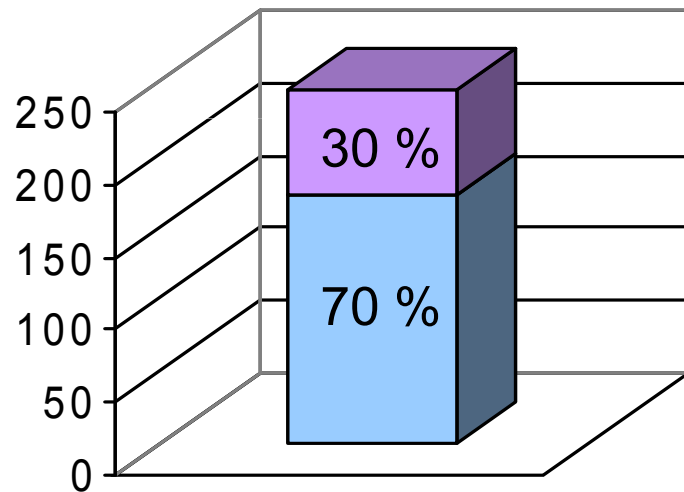
CEA's PhD programme



- CEA has its own PhD programme and hosts students from other institutes and other funding
- Each year approximately 350 new PhD students
- Total number of PhD students :



Age distribution and gender of PhD students recruited in 2006



How to apply for a PhD project?



General web site:

<http://www-instn.cea.fr/>

Presence of Indian Researchers at CEA labs



- **In February 2009:**

more than 50 Indian researchers for a period of 1 month or longer

- nuclear energy division (DEN) 3
- technological research division (DRT) 16
- physical sciences division (DSM) 25
- life science division (DSV) 8

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Collaboration with DAE and TERI



Thank you for your attention





Master of Science in Nuclear Energy

www.master-nuclear-energy.fr



UNIVERSITÉ
PARIS-SUD 11



fondation européenne
pour les énergies de demain

INSTITUT DE FRANCE



- Opening : September 2009
- Location : Paris Faculté des sciences d'Orsay
- Duration : 2 years
- Targeted number of students to be trained each year : 100 +
- Admission of high-potential international students with a Bachelor level in one of the following fields :
 - ✓ **Physics**
 - ✓ **Mechanical engineering**
 - ✓ **Chemical engineering**
 - ✓ **Electrical engineering**



- Core courses
 - **Nuclear physics**
 - **Fluid dynamics and heat transfer**
 - **Material science**
 - **Overview of energy technologies**
 - **Instrumentation & Control**
 - **Electrical engineering**
 - **Chemical engineering**
 - **Economics, management**
- Language and Culture courses
- Student project and internship (10 weeks)



- Core courses :
 - Nuclear safety and radioprotection
 - Project and risk management
 - Computer design and simulation
 - Environmental issues
- Choice between 5 majors :
 - Nuclear engineering
 - Nuclear plant design
 - Nuclear operations
 - Nuclear fuel cycle
 - Decommissioning and waste management
- Experimental sessions and training on EDF simulators
- Visit of Nuclear Sites
- Master's thesis and internship (20 weeks)
 - within an industry company or research lab



Strong support from :

- **Ministry of Higher Education and Research**
- **CEA**
- **EDF (including initial impulse and financial commitment)**
- **AREVA**
- **GDF SUEZ**