



Embassy of France in Australia
Cultural and Scientific Section

Management of Technology in France

Research in France (figures 2003)

- GDP :** 1,586 billion euros
- R&D budget:** 34.4 billion euros (2.17% of GDP)
- Public research:** 165 institutions of higher education of which 85 universities, and about 60 research institutions.
346,000 research personnel (of which 55.8% are in companies).
- Companies :** participate at the level of 53.8% in research expenses (compared with about 75% in Japan or USA)
In 2000, more than 5000 companies and industrial technology centres have carried out R&D.

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Minister of Education,
Research and Technology
June 1997 – March 2000

1. The law on innovation and research

July 10, 1999

Promotes the transfer of public sector funded research to industry and the creation of innovative companies.

4 main axes

- Mobility of researchers towards industry,
- Cooperation between public sector research institutions and companies,
- A fiscal framework for innovative companies,
- A legal framework for innovative companies.

Mobility of researchers towards industry

Facilitate the participation of researchers and research personnel as partner or manager of new companies (start-ups)

- They retain their public servant status,
- They may keep their salary,
- Contract between the university and the company,
- Shareholding possible up to 15%.

Cooperation between public sector research institutions and companies

Universities and research institutes can create:

- Incubators: 31 have been created from 2000 in all regions of France (including La Réunion),
- Industrial and Commercial Business Services,
- Economic Interest Groupings (GIPs).

Multi-years contracts between the State and the public sector research facilitate technological partnership.

A new legal and fiscal framework for innovative companies

- The share warrants system has been extended to small companies and largely facilitated,
- Creation of the "Innovation Investment Fund",
- Research tax credits are extended and promoted.

2. The structures: two complementary approaches

Diffusion of innovation

in local SMEs and promotion of the creation of start-ups as a result of public research.

Structured research

according to big priority areas with the help of:

- National networks,
- and
- Regionally located Competence Clusters associating private and public partners.

SMEs and the local technological networks

Aimed at making links between
SMEs and Universities/research
centres

- 200 Regional Centres of Innovation and Technological Partnership (CRI TT) : technological structures (funded by Regions),
- 21 Technological Development Networks (RDT): associations coordinating and facilitating the partnership (funded by Regions).

The Structured Research

Delocalised and localised levels :

- **RRIT:** *Réseaux de Recherche et d'Innovation Technologique*
National Technological Research and Innovation **Networks** on priority fields,
- **CNRT:** *Centres Nationaux de Recherche Technologique*
National **Centres** of Technological Research regionally located.

Technological Research and Innovation Networks (RRIT)

A national initiative created in 1998

- To merge research teams from the public and the private sectors,
- On mainstream S&T themes (ITC, life sciences, energy-transport, environment, space and aeronautics..),
- In response to strong demands from economic world,
- Year calls for proposals with priorities.

From 1998 to 2004 :

16 networks created, more than 1200 projects selected.

RRI T: 16 Technological Research and Innovation Networks

Information Technologies and Communication (TIC)

- RNRT (1998): Telecommunications
- RMNT (1999): Micro/nanotechnologies
- RNTL (2000): Software Engineering
- RIAM (2001): Audiovisual/Multimedia

Bio-engineering

- Génoplante (1999)
- RI B (2004) Innovative Biotech
- RNTS (2000): Healthcare Technologies
- RARE (2001): Food & Agro

RRI T: 16 Technological Research and Innovation Networks

Energy, environment, transports, resources....:

- PREDI T (1996): Transports
- PACo (1999): Fuel Cells
- RGC&U (1999)
Civil and Urban Engineering
- RNMP (2000): Materials
- RI TEAU (2000):
Water and Environment
- RI TMER (2001): Accidental
Marine Pollutions

Space and aeronautics:

- RTE (2000):
Earth and Space
- RaéS (2000):
Aerospace Research
on the Future
Supersonic

An example of Network: The PREDIT (Research and Innovation in Terrestrial Transport)

Very successful program:

First PREDIT launched in 1990 as a network program,
integrated into the RRI Ts in 1998

PREDIT 3 : 2002-2006, one of the largest RRI Ts

Topics: Security, Urban mobility, Environment

Regional, National and European Levels
Call for Proposals + Spontaneous projects

Orientation and Strategy Committee (45 members, 40% from companies),

Steering Committee (15 members, Funding Organisations + National and European representatives),

Executive Secretary,

11 operational groups.

Funded by 4 Ministries: Transport, Research,
Industry, and Environment, + ADEME and ANVAR,
305 M€ (about \$500 millions) for 5 years,
600 Projects supported between 2002 and 2004.

The National Centres of Technological Research (CNRT)

Centre: a local " nucleus " associating industrial partner(s) and public research, implemented by a national network of laboratories.

National: a national quality label.

State and Regional funding within the State-Region Framework Program.

Technological Research:

- Research : partly " academic " and oriented towards publications, partly applied and oriented towards patents,
- Technological : research priorities are chosen by the industrial partner(s).

An example of Centre: MI NATEC (Grenoble)

Grenoble-I sère:

17,000 jobs in scientific and academic research

220 laboratories

53,000 students

10 High Engineering Schools

A powerful local microelectronics industry, with:

13,350 workers (3,000 in research)

30 international companies and corporations

(HP, Sun, Xerox, Metron, Philips, Motorola, ST Micro,...)

20 high-potential startups launched in the last 5 years

A decisive support from the local authorities

Building competitive scientific districts

The LETI-MINATEC Innovation Centre

200 M€ additional investment from local public authorities
+ 200 M€ from CEA-Léti and INPG

Inauguration 02/06/06

Research

Industry

Education

- **Multidisciplinarity**
- **Excellence**
- **Critical mass**
- **Technological platform**

3,600 people
80,000 sqm

The model of MINATEC

A scientific hub for education, research and industry

Education INPG

1,500 people

- Attracting young talent
 - Teaching skills for the future

Research CEA-LETI

1,500 people

- Promoting inter-disciplinarity
 - Encouraging creativity
 - Accelerating the innovation process

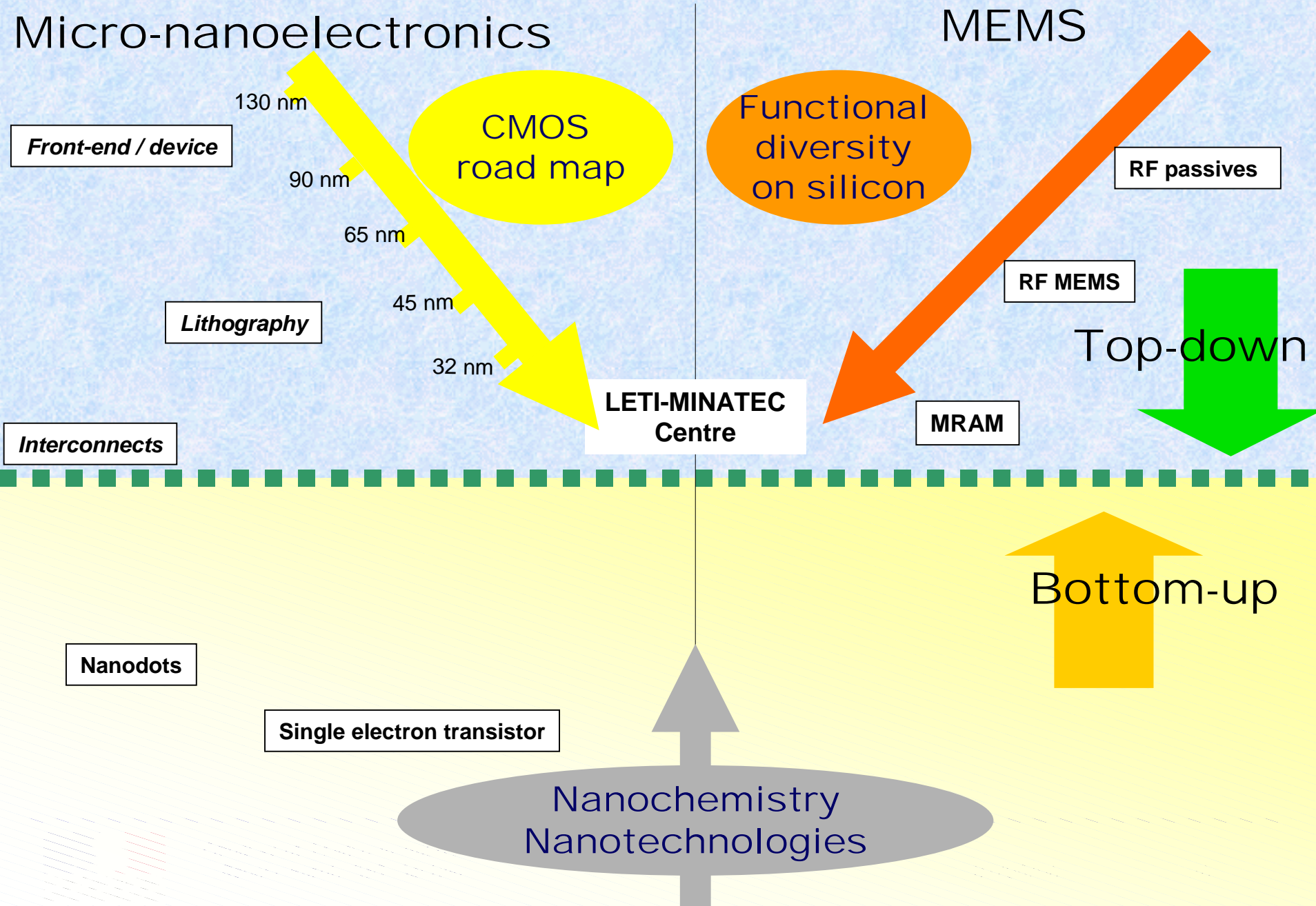
AN ORGANIZATION
OPENED TO
SOCIETY'S NEEDS
100 people

Industry applications
Services for public
and
private organizations

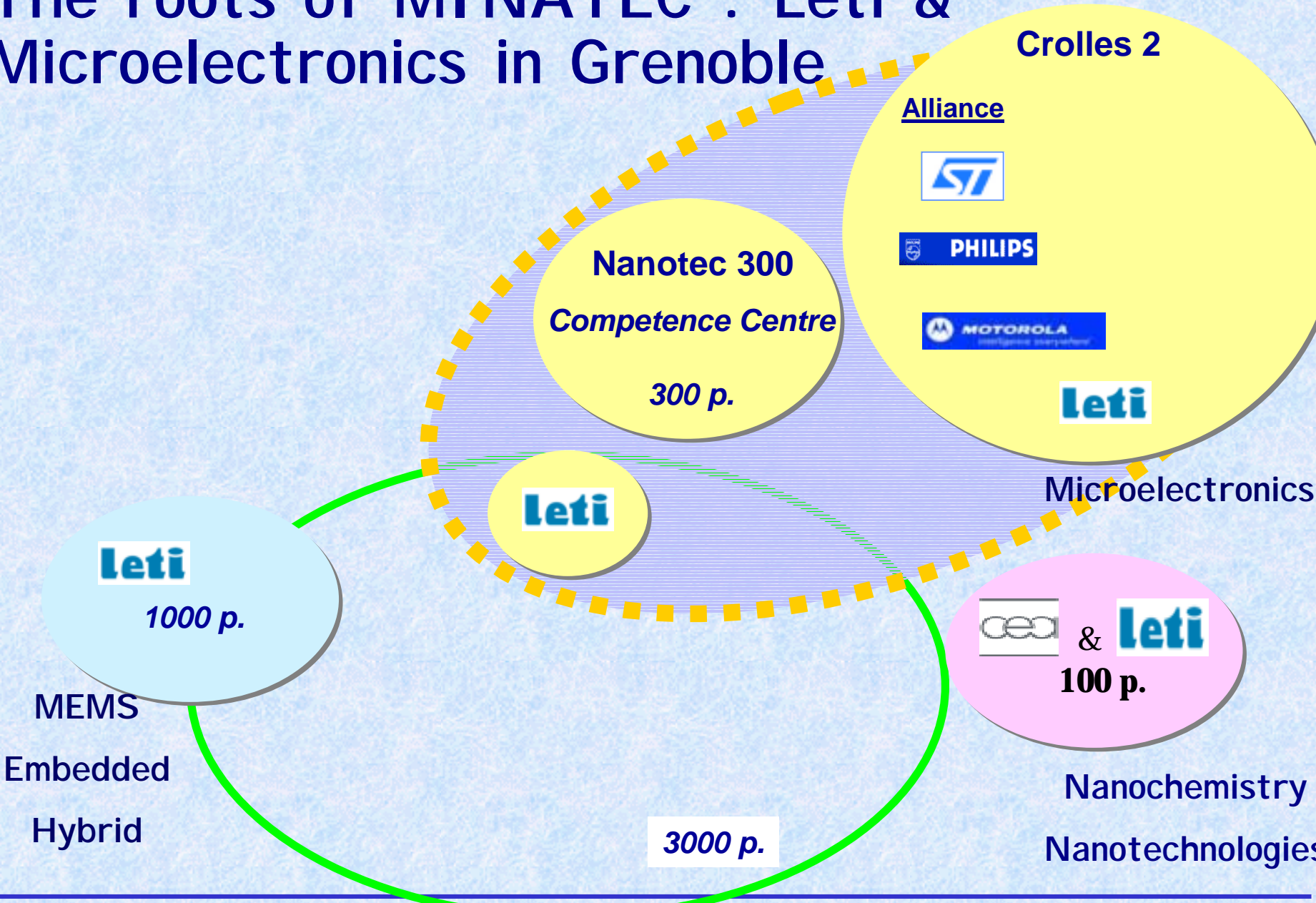
1,000 people

- Creation of long-term employment

The scientific target of MINATEC



The roots of MINATEC : Léti & Microelectronics in Grenoble



3. The New French Scheme for Innovation and Technological Partnership (2005)

The "Competitiveness Clusters"

- 66 clusters selected in July 2005,
- Geographically localised, likely to integrate some of the CNRTs,
- 500 M€ (\$800 m)/year between 2006 and 2008
Calls for Proposals funded by 8 Ministries, Agency for Industrial Innovation (AII), National Agency for Research (ANR), etc.....,
French Regions are also asked to support.
- First projects supported from April 2006,
- Cover innovative, but also more conventional fields,
- Open to similar partners abroad.

The "Agency for Industrial Innovation"

Created on 30 August 2005 - Funding agency: 1.7 billion €

Support to Competitiveness Clusters and major innovative programs (from 3 to 7 years).

6 projects selected so far in cooperation with foreign (European, mostly German) companies:

- BioHub: refinery from agro products (Roquette)
- Homes: 20% energy saving from automation (Schneider)
- NeoVal: new generation driverless subways (Siemens)
- Quaero: Media search engine software (Thomson)
- TVSML: Mobile TV standard (Alcatel)
- VHD: Hybrid Diesel vehicles (PSA)

" Les Instituts Carnot "

- Similar to the German Fraunhofer Institutes
- 20 Instituts Carnot labelled so far (16 March 2006)
- Most of them built on research institutions, High Engineering Schools or top level laboratories
- Eligibility and further funding based upon the ratio private to public funding.
- 40 millions € coming from ANR (National Agency for Research)
- Next calls for proposals in June 2006 (15 new Carnot Institutes) and first semester 2007.

The challenges and the risks

- Deep reshuffling of the research, innovation and technology landscape in France in a rather short time: ANR, AII, Competitiveness Clusters, Carnot, new assessment processes (AERES) and offices (DGRI),..... have all been created from 2005.
- A balance should be found between academic (basic) and industrial (finalised) research supports.

4. Australia-France Comparison and Perspectives

Similarities:

Difficulties in making academics and companies work together

Poor ratio private to public funding (about 1:1) when compared with Japan or USA (3:1)

CRCs and Competitiveness Clusters ?

Perspectives:

Many academic scientific collaborations between the two countries (Life, Earth and Marine Sciences, Energy, Biotechnologies, Agriculture, Environment, Materials,.....)

Why not initiating such a high level cooperation in technological partnership?

Problem of IP?

Thank you for your attention

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