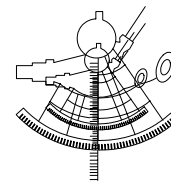


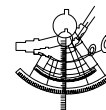
European Trend Chart on Innovation



Annual Innovation Policy Trends and Appraisal Report

FRANCE

2004-2005



Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States. The 'First Action Plan for Innovation in Europe', launched by the European Commission in 1996, provided for the first time a common analytical and political framework for innovation policy in Europe.

Building upon the Action Plan, the *Trend Chart on Innovation in Europe* is a practical tool for innovation organisation and scheme managers in Europe. Run by the Innovation Policy Directorate of DG Enterprise and Industry, it pursues the collection, regular updating and analysis of information on innovation policies at national and European level.

The Trend Chart serves the "open policy co-ordination approach" laid down by the Lisbon Council in March 2000. It supports organisation and scheme managers in Europe with summarised and concise information and statistics on innovation policies, performances and trends in the European Union (EU). It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

The Trend Chart products

The Trend Chart on Innovation has been running since January 2000. It now tracks innovation policy developments in all 25 EU Member States, plus Bulgaria, Iceland, Israel, Liechtenstein, Norway, Romania, Switzerland and Turkey. It also provides a policy monitoring service for three other non-European zones: NAFTA/Brazil, Asia and the MEDA countries. The Trend Chart website (www.cordis.lu/trendchart) provides access to the following services and publications, as they become available:

- a database of innovation policy measures across 33 European countries;
- a news service and related innovation policy information database;
- a "who is who" of agencies and government departments involved in innovation;
- annual policy monitoring reports for all countries and zones covered;
- all background material for four annual policy benchmarking workshops;
- the European Innovation Scoreboard and other statistical reports;
- an annual synthesis report bringing together key of the Trend Chart.

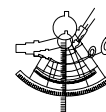
The present report was prepared by **Katharina Warta¹**, **Sophie Bussillet²** and **Aurélie Tricoire**, **Technopolis France**. The contents and views expressed in this report do not necessarily reflect the opinions or policies of the Member States or the European Commission.

This document has been prepared within the framework of an initiative of the European Commission's Enterprise and Industry Directorate-General, Innovation Policy Development Unit. Official responsible: Christophe Guichard (Christophe.guichard@cec.eu.int).

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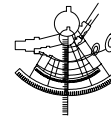
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Executive Summary

1. Snapshot of innovation performance and challenges

In 2004, the French system of research and innovation was marked positively and negatively. On the one hand there is a relative success in increasing the employment in high-tech service and the public R&D expenditures. On the other hand an obvious decrease in the private sector can be witnessed (with the reduction of business R&D expenditure and employment in medium and high-tech manufacturing activities), as well as a relatively bad position in lifelong learning, a lower growth than the EU trend in the number of S&E graduates and a low number of patents deposited in Europe and in the US.

Thus the challenges for France remain the same: improving innovation performance, lifelong learning and patenting. Other challenges are: dealing with the multiplicity of institutions concerned with innovation support to generate a strategic vision in policy making and supporting R&D in small firms (insufficient venture-capital, insufficient attention paid to predevelopment stage...).

2. National objectives for innovation

As stated in the successive Finance Laws, the main objectives of the French innovation policy to increase competitiveness, growth and employment, are to create a bridge between public and private research, to support innovation activities in the industrial sector and especially to support the development of a fabric of high-technology based SMEs.

A very important initiative taken in the field of innovation policy in the last few years is the Innovation and Research Act of 12 July 1999, designed to modernise and reorganise the French innovation system. The objectives of the Act were to facilitate and promote technology transfers from public research to industry, and to foster the creation of innovative enterprises.

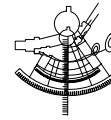
To update the 1999 Law and complete its implementation, the Ministry in charge of Research and the Ministry in charge of Industry presented a Plan for Innovation in December 2002. The objective of the Plan is to offer a general framework favourable to partnership between public research and socio-economic actors. More specifically, it seeks to encourage the creation (also by researchers) and development of innovative enterprises, the consolidation of private public partnerships, the development of industrial research and the integration of young researchers within enterprises.

3. Implementing innovation policy – what's new!

The main changes to french innovation policy in 2004-2005 regard the institutional framework. The three following points are already implemented:

- The creation of the National Agency for Research: The Agency's exact status and working methods are still unclear as the various statutes setting out its role will form part of the forthcoming Research Bill. In the meantime a temporary structure has been established to distribute the Agency's €350 million budget for 2005 (stemming mainly from privatisation receipts). The ANR will have a particular focus on basic research and research carried out in collaboration with industry. In 2005 the ANR will take over the management and funding of a number of existing directed funding programmes previously run by the Research Ministry, including RRITs (Research and Technological Innovation Networks).
- The creation of OSEO as a result of the merger of ANVAR (the National Innovation Agency), BDPME (Bank for Development of SMEs), the Agency for SMEs and the SOFARIS scheme. In January 2004 ANVAR took over the management of the Fund for Enterprises Competitiveness and of the Programme ATOUT. This is in line with one of the strategic orientations defined in the 2003 Innovation Plan to make OSEO the main public operator in the field of innovation, in charge

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of managing and implementing the measures established by the government to promote innovation – especially towards SMEs³.

- The creation of the General Directorate for Enterprises (DGE) in the Ministry in charge of Industry, following the merger of the two divisions in charge of innovation-related matters (Division for Industry, Information Technologies, and Post DiGITIP, and the Division for regional action and SMEs DARPMI). The objective of the DGE is to bring about more efficient support measures in favour of firms and deal more effectively with innovation and competitiveness issues.

The Industrial Innovation Agency and competitiveness clusters are two other initiatives to be implemented before summer 2005:

- To complete ANR and OSEO actions, another Agency will be created before this summer, following the conclusions and recommendations of Jean-Louis Beffa's report on the French industry policy, released on 17 January 2005. The main conclusion of the report is that French industry is currently specialised in low-tech sectors, which explains the relative industrial decline of France. The author's recommendations are to promote a new industrial policy based on the creation of a new agency, the Industrial Innovation Agency (All), which will be set up by Beffa. One of the main tasks of All will be to manage and coordinate medium term public programmes for industrial innovation, called "Programmes mobilisateurs pour l'innovation industrielle" (PMII).
- Finally the main new development of innovation policy in 2005 will concern Competitiveness clusters ("pôles de compétitivité"), a concept officially launched by the Prime Minister on 14 September 2004. Defined territorially by the concurrence of a strongly specialised industrial basis and research and education potential, the clusters are to foster the synergetic development of a sector or a technology through active partnerships between the clusters' members. Companies, research centres and initial and further education institutions belonging to such clusters will receive direct aids (subsidies for research projects, infrastructures etc), benefit from a series of tax incentives (fiscal rebates on corporate and social taxes) and have access to funding sources under privileged conditions (e.g. guarantees).

4. Appraisal of the innovation governance system

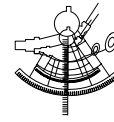
Three main characteristics of the French innovation governance system can be highlighted:

- A high level of transparency and readability of information and documents on implemented policy and strategic planning, as well as efforts to let the public participate in the decisions (Assises de l'innovation in 1998, national consultation through an electronic questionnaire at the occasion of the 2003 innovation plan are the most outstanding examples). Policy review is quite systematic – the annual publication of an annex to the Finance Law "State of research and technological development" is the most regular and comprehensive policy document. Access to reports, indicators, factual policy information is easy, and benchmarking studies and trans-national learning becomes quite systematic too.
- However at a more operational level follow-up is still one of the weaknesses of innovation governance in France. There is indeed a lack of use of indicators guiding R&D policy.
- The multitude of actors in innovation policy at the national and regional levels (a considerable number of regional innovation agencies has been set up recently) is one of the more prominent problems, especially for SMEs (as highlighted in a report in 2002 for the Economic and Social Council). However, the institutional landscape for innovation policy is likely to consolidate and become more coherent in the course of a reorganisation of all involved actors, for which there has been growing support over the past year. (See section 3 of this summary).

Other weaknesses/threats (industrial R&D spending, regional imbalances...) of the national innovation system have been addressed in two reports that had a wide impact on the reorganisation of French innovation governance (reports by C. Blanc and J.-L. Beffa) as they will lead to the creation of the Industrial Innovation Agency and of competitiveness clusters in this year.

³ OSEO has been launched in January 2005 but will have a juridical status in July 2005.

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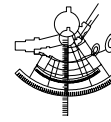
5. Appraising progress of policy implementation

Since 2003, and the formulation of the Innovation Plan in particular, several measures have been created (JEI, SUIR...) and the institutional framework has evolved (see above). The challenges highlighted in the first section of this summary have in general been addressed by these measures and changes – except for lifelong learning, which does not appear either on the political agenda or as a priority in reports or in think tanks reflections. It is, however, too early to establish if the new framework and its measures will indeed solve the weaknesses of France's innovation system and policy.

Since 2000, innovation policy-making has benefited from the thrust initiated by the 1999 Innovation Act. The Act has indeed generated enthusiasm and a wide cultural change by increasing and facilitating the interaction between the academic and the business sector. Other important objectives achieved in terms of (cultural) attitude with respect to innovation is the slow diffusion of a project culture and of an evaluation culture. Other institutional targets that were met include the introduction of infrastructural changes with the establishment of a more 'innovation-friendly' administrative environment.

Quantitative targets are less likely to be achieved. France has officially endorsed the Lisbon objective to devote three percent of its GDP to research by 2010 - two thirds of which are to be funded by enterprises and one third by the State. Nowadays, public research expenditure represents 0.95 percent of GDP, while business research expenditure reaches 1.25 percent of GDP. One important objective is therefore to increase private research/innovation within enterprises. The proportion of public and private R&D expenditure set as a target in this objective appears to be feasible. In contrast, the overall quantitative target seems less likely to be met in time. The Government set the intermediate objective to increase total R&D expenditure to 2.6% of GDP by 2006.

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1 The Innovation governance system

1.1 Overview of the innovation system

1.1.1 The national innovation system

The French 'innovation system' is better described as a '**research and innovation system**' (SFRI)⁴ to account for the specific place reserved for research in French socio-economic organisation. However, in the French context, there is a risk is to end up concentrating on the 'research system' referring to a historically precise and structured object, at the expense of the 'innovation system', a somewhat newer and less clear-cut notion.

The French research and innovation system is the result of post war historical developments. As far as research is concerned, the **1982 Law on research**⁵ formalised many of its current features. Initially concentrated mainly on public sector research, the setting evolved since then into a more integrated way of intervention, addressing users and producers of knowledge, as well as public and private organisations.

One of the French particularities relates to the **status of researchers**. As enshrined in the 1982 Act, researchers are assimilated to 'civil servants', i.e., they benefit from a full-time and lifelong position. This has now become very controversial, as it is considered to be a cause for an ageing researcher population (the average age of French researchers is 45 years).

It was also this Law that provided for the institutional status of public research with the establishment of Public scientific and technological establishments (EPST)⁶ and Public industrial and commercial establishments (EPIC), and the creation of the BCRD, the public civilian R&D budget (see Section 1.1.2). Finally, the Law created the CSRT (Conseil Supérieur de la Recherche et de la Technologie) and promoted regional R&D Policy.

SMEs have in the past 25 years been recognised and supported as innovation actors with instruments developed by OSEO-ANVAR and the Ministry in charge of Industry. More recently, the **Innovation and Research Act adopted in 1999** represented a landmark in attempting to establish bridges between public research and private initiatives (see Section 2.1.2). A new Orientation and Programming Law on Research and Innovation is expected to be presented by the Government, but not before June 2005.

⁴ The 'French research and innovation system' (SFRI) is indeed the expression used in the context among others of the FutuRIS initiative – see Section 2.1.3.

⁵ Loi d'orientation et de programmation du 15 Juillet 1982.

⁶ Interestingly, the Law introduced the obligation for EPST to commercially exploit ("valorisation") the results of their research activities, a feature not exactly followed by practical consequences.

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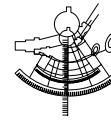


Table 1: Selected key organisations within the National Innovation System

Type of organisation	Name of organisation	Website
Government and legislative bodies		
Government body	Ministry in charge of Research and Technology	www.recherche.gouv.fr
Government body	Ministry in charge of Industry	www.industrie.gouv.fr
Government body	Ministry in charge of Defence	www.defense.gouv.fr
Legislative body	Parliament (Sénat and Assemblée Nationale)	www.assemblee-nationale.fr and www.senat.fr
Consultative bodies	CIRST (Inter-ministerial Committee for Scientific and Technical Research), CSRT (High Council for Research and Technology), OPECST (Parliamentary Office for Evaluation of Scientific and Technical Choices)	www.senat.fr/opecst www.recherche.gouv.fr/conseil/csrt/index.htm
Private sector organisations and entrepreneurship promotion		
Public establishments	Chambers of Commerce and Industry, and Regional Chambers of Commerce and Industry	www.acfi.cci.fr (Assembly of French Chambers of Commerce and Industry)
	'Public' Incubators	www.franceincubation.com
Association	APCE (Business start-up agency) & CPCE	www.apce.com
Knowledge institutes (R&D and education bodies)		
EPST – Public scientific and technological establishments	of which the CNRS (Centre National de la Recherche Scientifique) of specific quantitative budgetary and political importance. Other EPST comprise INRA (agronomy), INSERM (clinical research), ORSTOM – IRD (development), INED (demography), INRIA (computer science), CEMAGREF (agriculture and environment), INRETS (transports) etc.	www.recherche.gouv.fr/organism/index.htm
EPIC – Public industrial and commercial establishments	OSEO will be an EPIC (see Financial System). The other EPIC include ADEME (environment), CNES (space), CEA (atomic energy), IFREMER (sea), CIRAD (agronomy), ADIT (technology watch) etc.	www.recherche.gouv.fr/organism/index.htm www.oseo.fr
85 Universities	+ linked associations : e.g. CPU (University Chairmen Conference), Réseau CURIE	www.education.gouv.fr/sup/univ.htm , www.curie.asso.fr , www.cpu.fr/Cpu/default.asp
Non profit institutions	e.g. Institut Pasteur, Institut Curie	www.recherche.gouv.fr/organism/index.htm
Industrial research centres and innovation intermediaries		
Association	National Association of Technical Research ANRT	www.anrt.asso.fr
Intermediary structures bw. public and private STI organisations	CRITT (Regional Centre for Innovation and Technological Transfer), CRT (Centre de ressources technologiques), PFT (Technological platforms)...	
Financial system		
National Agency	OSEO (as an EPIC) – a merge notably between ANVAR (National Innovation Agency) and BDPME (Bank for SMEs' Development). These subsidiaries will have the status of limited companies (see Financial System) is one of them	www.oseo.fr
National Agency	ANR (National Agency for Research) – in creation	www.gip-anr.fr
National Agency	ADEME	www.ademe.fr
State-owned financial institution	Caisse des Dépôts et Consignations – SMEs (will become CDC Entreprises)	www.cdcpme.fr (www.cdcentreprises.fr)

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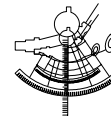
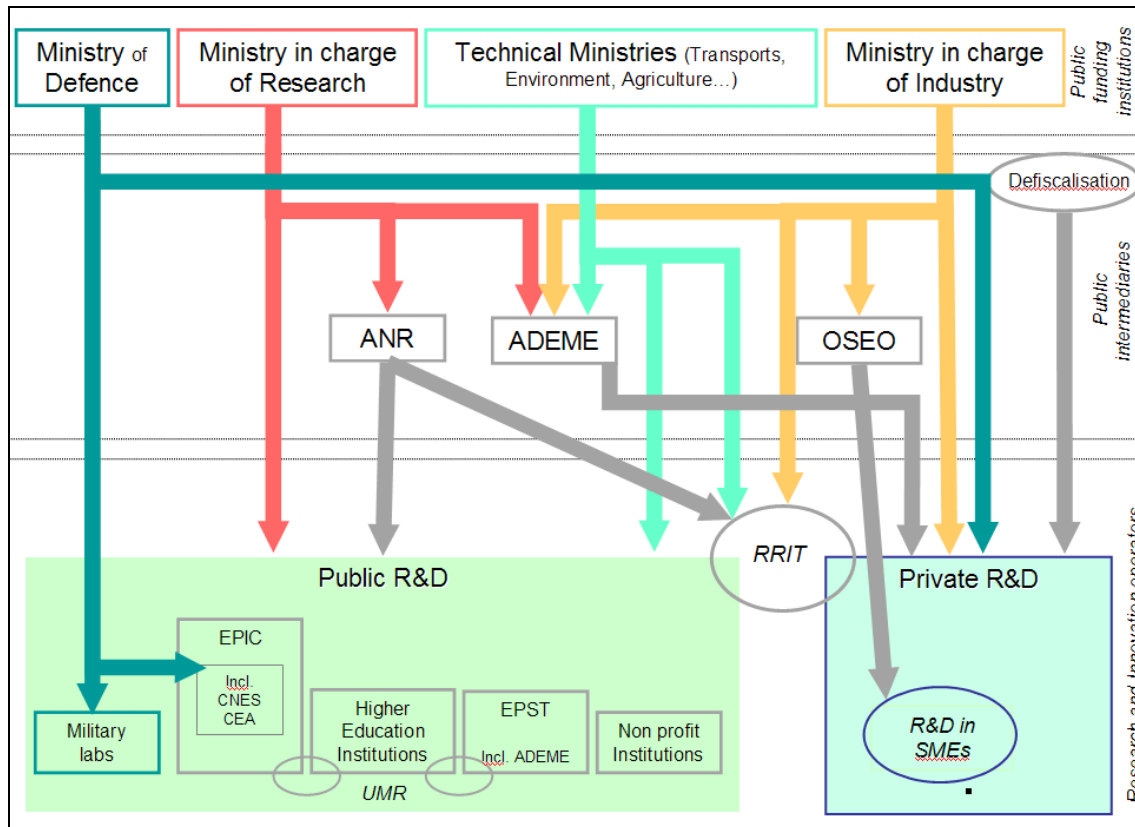


Diagram 1: Simplified structure of public financial support to research and innovation in France at national level⁷



ANR: National Agency for Research
ADEME: Environment and Energy Management Agency
EPIC: Public industrial and commercial establishments
EPST: Public scientific and technological establishments
RRIT: Research and Technological Innovation Networks
UMR: Mixed Research Team

Public research institutes are divided into two sorts: so-called '**EPST**', public institutes for science and technology, and '**EPIC**', which have a more industrial and commercial character. Since the Law on research and innovation (1982), researchers in EPST are civil servants, employed for life. The main EPST is **CNRS**, the Centre for Scientific Research. With around 25,000 employees (of which around 11,000 are researchers), it is today France's (and Europe's) biggest public research institute and probably the world's largest fundamental research organisation.

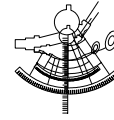
The majority of research in EPST is performed in 'associated laboratories' shared with Higher Education Establishments (Universities...). Each of the 85 **universities** fixes its research objectives in four-year contracts with, the Ministry responsible for research and the EPST involved in mixed laboratories (UMR). Whereas EPST personnel are full-time researchers, university personnel has a 50% teaching obligation.

Finally, there are also **non-profit organisations** involved in research. State funding has an important share in the budget of these foundations.

Due to the vertically structured organisation of public research – strong administrative dependence of (thematic) research organisations of their ministry, strong thematic organisation of scientific evaluation in basic research – **science industry linkages** are traditionally poor in France. Industrial research is

⁷ This diagram does not represent the future Industrial Innovation Agency and therefore will be outdated by the end of 2005.

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mainly carried out by big companies and in this respect, one tendency has historically been to privilege the latter rather than SMEs⁸ when providing with RTD support ('national champions policy' and 'neo-colbertisme'⁹). Mustar and Larédo¹⁰ observed however that French innovation policy becomes more "bottom-up", and that the links between the different players of R&D tend to be reinforced, especially between public and private research. This trend still continues to date. The Innovation Law of 1999 played an important role in interactions between public and private research, as well as the creation of RRITs, Research and Technological Innovation Networks in 1998. Their objective is "coupling public research and enterprises, on priority fields assessed by the Government where the effort achieved by usual structures is judged insufficient". Projects in RRITs usually mix public laboratories, SMEs or start-up companies and industrial groups.

Finally, the so-called Beffa report (CEO of Saint Gobain)¹¹ argues in favour of an active industrial policy based on a few selected big "mobilisation programmes" expected to concentrate excellence in high-tech sectors with strong development potential. These "long-term industrial technological programmes" must rely on a public-private partnership whereby the State funds up to 50 percent of the research projects. An "**Agency for Industrial Innovation**" (**AII**) will be set up by Mr Beffa according to the recommendations of his report.

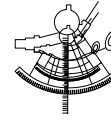
⁸ With the exception to the innovation support by OSEO-ANVAR, credited exclusively to SMEs.

⁹ Neo-colbertisme refers to active interventions of the state in favour of industry (generally big enterprises), often accompanied by protectionist measures.

¹⁰ Mustar P. and Larédo P. (2002): Innovation and research policy in France (1980-2000) or the disappearance of the Colbertiste state. Research policy, volume 31, Issue 1, January 2002, Pages 55-72.

¹¹ In favour of a new industrial policy, <http://www.rapport-jeanlouisbeffa.com/>

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1.1.2 National innovation policy making and delivery structures

Two ministries share the responsibility for research and innovation policy in France: the **Ministry in charge of Research** (which acts under the authority of the Ministry of National Education, Higher Education and Research) and the Ministry in charge of Industry (which acts under the authority of the Ministry of Economy, Finance, and Industry).¹² Within the former, the Technology division (Direction de la Technologie) is more directly concerned with the promotion of industrial research, private/public partnerships and commercial exploitation of public research outcome, whereas the Research division (Direction de la Recherche) is responsible for research policy, the supervision of research institutions and the preparation of the Government's R&D budget (BCRD – see below). The two divisions tap into two funds to sustain their actions: the FRT (Fonds de la Recherche Technologique / fund for technological research) and the FNS (Fonds National de la Science / national science fund) respectively.¹³

Within the **Ministry in charge of Industry**, the two divisions in charge of innovation-related matters were the Division for Industry, Information Technologies, and Post (DiGITIP)¹⁴ (in particular the Service for competitiveness and innovation policy – the SPIC¹⁵) and the Division for regional action and SMEs (DARPMI)¹⁶. They were merged in 2004 to form a wider General Directorate for Enterprises (DGE).¹⁷ The objective of the DGE is to bring about more efficient support measures in favour of enterprises and deal more effectively with innovation and competitiveness issues. DGE is in charge of the definition of measures promoting industrial competitiveness, the adaptation of the regulatory framework and the coordination of the Regional Divisions for Industry, Research and Environment (DRIRE), the regional representations of the Ministry. Funding of technology and innovation related activities in industry comes from the Fund for Enterprises Competitiveness (FCE)¹⁸, managed since January 2004 by the State.

The third important institutional actor is the French Agency for Innovation, OSEO-ANVAR, the objective of which is to promote innovation in French industry, in particular SMEs. Under the double responsibility of the Ministry in charge of Research and especially of the Ministry in charge of Industry, OSEO-ANVAR is a decentralised implementing innovation agency with a strong presence at the regional level. It is now pursuing an increased responsibility as main 'public operator for innovation' (see Section 1.1.3).

¹² There are frequent changes of names of the Ministries on the occasion of even small governmental changes. For the sake of simplicity, in the present report it will be systematically referred to the Ministry in charge of Research and the Ministry in charge of Industry.

¹³ The ANR (National Agency for Research) is currently being set up and just adopted (March 2005) its programming ; cf. Section 2.1.3.

¹⁴ Direction Générale de l'Industrie, des technologies de l'information et des postes.

¹⁵ Service des politiques d'innovation et de compétitivité.

¹⁶ Direction de l'action régionale et des PMI.

¹⁷ Direction Générale des Entreprises.

¹⁸ Fonds de Compétitivité des Entreprises

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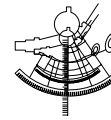
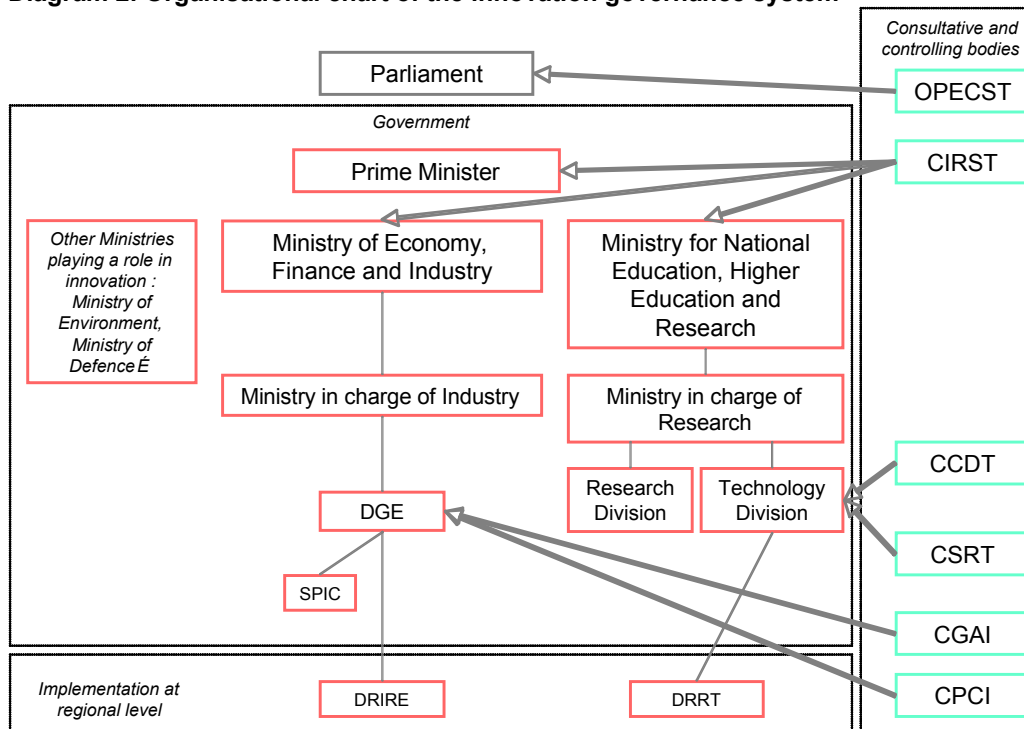


Diagram 2: Organisational chart of the innovation governance system



CCI: Chamber of Commerce and Industry
CGAI: Managing Committee for aid to industry
CIRST: Inter-ministerial Committee for technical and scientific research
CPCI: Permanent Commission of consultation with industry
CSRT: High Council for Research and Technology
DGE: General Directorate for Enterprises
DRIRE: Regional Division for Industry, Research and Environment
DRRT: Regional Research and Technology Delegations
OPECST: Parliamentary Office for Evaluation of Scientific and Technical Choices
SPIC: Service for competitiveness and innovation policy

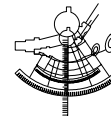
Inter-ministerial co-ordination should in principle take place in the inter-ministerial committee for scientific and technical research (**CIRST**) established in 1998 to define priorities in the field of scientific policy. However, in reality, CIRST is only used rarely as inter-ministerial co-ordination mostly takes place on an informal and *ad hoc* basis, and at a higher level mostly between the two Ministries' departmental staff. At this higher level, there is a risk of incomplete co-ordination with each Ministry tempted to decide on its own field. At worse, some degree of competition can even arise between the two ministries. In any case, the disadvantage is that it makes it more difficult to have an overall view of the system. In effect, much depends on the individuals in charge of the ministries concerned.¹⁹

At a lower, technical level, there is generally a good quality inter-ministerial cooperation, which is facilitated by the relatively small number of people working in the field at the two ministries. It is easy for them to establish working groups and have representatives of the two ministries work in a specific (technical) topic. Generally, information and outcomes resulting from these inter-ministerial interactions are forwarded to the respective ministerial departments.

Consultations and support to decision-making once more preferably take place on an *ad hoc* basis and are therefore little formalised. There are a number of bodies where these consultations can develop, activated to varying degrees and depending on the subject covered (Diagram 1).

¹⁹ There have been two recent changes of Minister: Claudie Haigneré was replaced by François d'Aubert at the Ministry in charge of Research and Thierry Breton recently succeeded to Hervé Gaymard, N. Sarkozy and F. Mer at the Ministry of Economy, Finance and Industry.

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- The High Council for Research and Technology²⁰ (CSRT) and the Consultative Committee on Technological Development²¹ (CCDT which consists of 15 experts in the field of applied research, technological innovation and business creation) are advisory fora for the Ministry in charge of Research, but neither has any real effective weight in decision making.
- At the Ministry in charge of Industry, working groups provide some effective support to policy making of a more technical nature.
- The Managing Committee for aid to industry (CGAI)²² gathers representatives from the DGE, from the Technology Directorate of the Ministry in charge of Research, from RRIT (FR 17) as well as other 'qualified' people. It mainly provides advice on initiatives covered by the Fund for Enterprises Competitiveness (FCE) i.e., mostly research and innovation projects carried out in partnership.
- An even more effective body, the Permanent Commission of consultation with industry (CPCI)²³, brings together representatives of the DiGITIP and the industry (MEDEF or GFI²⁴) with representatives of the ministries concerned and other stakeholders (ANVAR, the National Agency for Innovation, APCE, the National Agency for the Creation of Enterprise, etc). It is divided into sub-sections (taxation, innovation, etc.) and meets on an *ad hoc* basis depending on the needs, usually about once a month. Once a year, a general CPCI is organised with the participation of the Prime Minister or the Ministry in charge of Industry.
- Lastly, OPECST should be mentioned, a parliamentary working group which produces high quality reports on sectoral aspects of innovation policy.

In general, consultations appear to be conducted 'internally'. However, once external stakeholders are involved, they are often selected from a limited number of bodies (for example, Chambers of commerce and association of Chambers of commerce – CCI and APCCI, Regional Council, Conseil des Mines, etc.) or sectors (e.g. industrialists or groups of industrialists, specialists from the research sector or high senior officials). Overall, coordination based on multiple personal contacts leads to implicit co-ordination in a context characterised by a lack of formalisation, little transparency and little 'memory'.

Besides the ministry of Research, "technical" ministries (agriculture, transport, health...) are in charge of innovation-related matters, and therefore receive funding through an original financial tool, the Civilian budget for research and technological development (BCDR²⁵ - see Figure 1). A part of the 'Finance law' voted annually by the Parliament, the BCRD is a budgetary platform defining all credits for research in a single document enabling an overall co-ordination of public research credits. Interestingly, the BCRD is not established by inter-ministerial co-ordination but is prepared by the Ministry in charge of Research.²⁶ In 2004, it amounted to EUR 9,221 million.²⁷ This compares to the defence R&D budget (DBDRDM²⁸) which amounted to EUR 3,560 million in 2004.

The BCRD is primarily at the disposal of the Ministry in charge of Research, covering funding for public research organisations²⁹ as well as 'incentive funds' that were under the responsibility of the Ministry before the recent creation of the ANR. These funds are on the one hand dedicated to fundamental research ('grandes écoles', other public research organisms); most of this funding goes to 'ACI'³⁰. The budget for this type of funding reached EUR 152 million in 2004, roughly similar to 2003. On the other hand, another type funding is dedicated to industrial research, EPIC, public /

²⁰ Conseil Supérieur de la Recherche et la Technologie (see <http://www.recherche.gouv.fr/conseil/index.htm>)

²¹ Comité Consultatif du Développement Technologique.

²² Comité de gestion des aides à l'industrie.

²³ Commission Permanente de Concertation avec l'Industrie.

²⁴ The 'Mouvement des Entreprises de France' (MEDEF) is the biggest association of entrepreneurs; the 'Groupement des Fédérations Industrielles' (GFI) gathers industrial federations within the MEDEF.

²⁵ Budget Civil de recherche et de développement technologique.

²⁶ There is a project to make the BCRD a truly interministerial exercise in the context of the 'LOLF' – see Section 3.2.3.

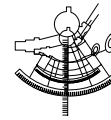
²⁷ On the basis of 2001 figures, the BCRD represented slightly more than 60 percent of total public funding to R&D (see Lesourne 2004).

²⁸ Dépense budgétaire de R&D militaire.

²⁹ Universities are subject to a separate budget. For information, it amounts in 2003 to EUR 419 million.

³⁰ 'Action concertée incitative': their objective is to boost oriented research in priority areas. They take the form of open calls for the selection of scientific projects; they are expected to bring together fundamental and applied research and give rise to the formation of research teams.

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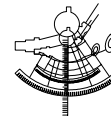


private partnerships, technology transfers, 78 percent of which is dedicated to the RRIT programme (FR 17). Its budget reached EUR 197 million in 2004, the highest level ever.

The BCRD (and its two funds under the responsibility of the Ministry in charge of Research) is supplemented by the Fund for Enterprise Competitiveness (FCE), which provides aids to enterprises and bigger innovation and research projects carried out in partnership. In 2004, the annual budget was EUR 143 million, which is less than in 2003.³¹

³¹ The FCE used to cover both OSEO/ANVAR's 'reimbursable loans' and subsidies; since 1 January 2004, it covers only subsidies.

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1.1.3 Governance of regional innovation systems

There are 22 regions in metropolitan France with the mission to contribute to regional economic and social development. Since the 1980s, an important process of decentralisation has taken place. The 1982 act on decentralisation gives regions direct competence in the fields of education and training and of territorial planning covering economic development and research. The 'Regional Councils' (elected regional bodies) can provide support to enterprises, constitute technological centres and establish innovation and technology transfer centres. R&D development in the regions is also assisted by four-year contracts concluded between the state and the regions, the 'Contrat de Plan Etat – Régions' (CPER) amounting to around EUR 200 million (2000-06) as well as the Structural Funds. For the 2000-2006 period, the CPER have the following broad priorities: reinforce synergy between public research and higher education, develop poles of competence and excellence, promote technology transfer and help the acquisition of equipments.

Regions autonomously decide the budget they spend on R&D and innovation. This leads to varying levels of research and innovation funding. For example, the item 'higher education and research' represents 18.4 % of the Ile de France's CPER, 15.4 % of the Rhône Alpes' CPER and 14.6 % percent of the CPER in Provence-Alpes-Côte d'Azur. However, in average budgetary terms, the role of regions is still very restricted. In 2000, for example, the share of public funding to R&D financed by regions was 1.4 percent against 88.2 percent for R&D financed by the state and 10.4 percent for R&D financed by Community funding.

One of the main actors at regional level is OSEO/ANVAR³², the National Agency for Innovation supervised jointly by the Ministries in charge of Research and Industry. ANVAR is now part of OSEO group (see section 2.1.4.1.), who is the main contributor to the agency's budget (around EUR 274 million annually³³). In 2003, the Agency monitored aid to enterprises for a total amount of EUR 295 million, corresponding to 4,086 individual cases. Since its creation, ANVAR has undergone a remarkable decentralisation of its organisation. As a result, the central headquarter in Paris together with the Agency's 25 regional delegations make the Agency a privileged interlocutor both at national and regional levels.

The mission of the Agency was originally to support enterprise creation and innovation within industry (in particular SMEs)³⁴ mainly by sharing the financial risk associated with their innovative projects. The main instrument to reach this objective is an interest-free loan, refundable in case of success (see FR1).

In 1997 OSEO-ANVAR's mission was extended to include the objective of promoting the commercial exploitation of public research and contributing to industrial growth through the promotion of innovation. This implied that the Agency helped mobilise financial funds necessary for companies' growth.

Further steps in the same direction are currently taken. On the occasion of the renewal of its contractual arrangement with the State for the period 2004-07, ANVAR's role has been formally consolidated as main organiser and co-ordinator of innovation support measures at the regional level. This is in line with one of the strategic orientations defined in the Innovation Plan to make OSEO group the main public operator in the field of innovation, in charge of managing and implementing the measures established by the government to promote innovation (see section 2.1 and section 3.2.3).

The other actors are the regional offices of the ministries in charge of Research and of Industry: the Regional Research and Technology Delegations (DRRT)³⁵ and Regional Division for Industry, Research and Environment (DRIRE).³⁶ They are responsible for the implementation of measures

³² Agence nationale de valorisation de la recherche.

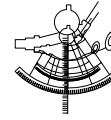
³³ Up to 20 percent of OSEO/ANVAR's budget is devoted to subsidies and 80 percent to reimbursable loans (FR 1).

³⁴ Using the French definition i.e. companies with less than 2000 employees that are not affiliated to companies with more than 2000 staff members.

³⁵ Délégation régionale à la recherche et à la technologie.

³⁶ Direction régionale de l'Industrie de la Recherche et de l'environnement.

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falling under the responsibility of their respective Ministry and for general co-ordination. Regional Consultative Committees on Technological Research and Development (CCRDT) were established in 1982 as one component of the decentralisation reform. Within the prefectures³⁷ regional aid from the Structural Funds is coordinated by the General Secretariat for regional affairs (SGAR) in cooperation with the Regional Councils.

Table 2: Regional governance of innovation policy matters

Level of regional/local government	Legislative &/or administrative authorities	Authority related to innovation policy, if any
Regional	22 Regions	Education and training, and territorial planning covering economic development and research
National decentralised / regional	OSEO-ANVAR (National Innovation Agency)	Supports enterprise creation and innovation within industry (in particular SMEs) ; promotes the commercial exploitation of public research and contributes to industrial growth through the promotion of innovation
National	DRRT	Coordination/implementation at the regional level of national measures from the Ministry in charge of Research
National	DRIRE	Coordination/implementation at the regional level of national measures from the Ministry in charge of Industry
National	Prefectures : SGAR	Coordination of regional aid from the Structural Funds together with Regional Councils

Finally, there is a series of organisations aiming to bring together the (numerous) actors on the regional level, such as

- technical centres,
- regional centres of innovation and technology transfer (CRITT) and the Centre of technological resources (CRT) which offer scientific and technological services,
- the national centres of research and technology (CNRT) which bring together public research laboratories and private research centres,
- the networks of technological development (RDT) which are networks of institutional actors (OSEO, DRIRE, DRRT, Chambers of commerce, prefects ...) aiming to exchange and provide information for the benefit of SMEs, even the less 'innovation-aware' ones.

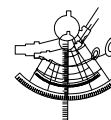
The French system of knowledge and technology transfer is characterised by numerous regional science parks ("technopoles"), generally built next to a centre of academic excellence and managed at the local level. Some are very active and internationally recognised, for example Sophia Antipolis in Nice, Eurasanté in Lille, etc. They are one of the few initiatives which do not result from the decentralisation of central Government activities, but are truly local initiatives. They sometimes host European centres of companies and innovation (CEEI) which are very often extremely dynamic in supporting the innovation strategies of local SMEs and companies as well as incubators.

As hinted above, one current trend is to reorganise the division of competencies in innovation matters at the local level, in an attempt to have a more clear-cut definition of responsibilities. This took place in the context of the adoption of a new law on decentralisation of July 2004. One project emanating from the Ministry of Economy, Finance and Industry created competitiveness clusters ("poles de compétitivité") defined territorially by the concurrence of a strong industrial basis and research and education potential. They need to develop on an existing basis of supply of services, finance and infrastructures. The label 'Competitiveness cluster' will be granted to successful candidates who would then be eligible for a series of tax exemptions, social rebates and significant amounts of public aid (investment in infrastructures, in research etc). A call for proposals was launched in autumn 2004. By March 2005, 105 applications had been received, including 26 inter-regional ones.³⁸

³⁷ Region representation of the State

³⁸ A report was submitted to the Prime Minister on 'An ecosystem for growth' (Pour un écosystème de la croissance) by C. Blanc on 21 April 2004, available at <http://www.ladocumentationfrancaise.fr/brp/notices/044000181.shtml>. See also a report published by Datar in February 2004 on 'La France, puissance industrielle – Une nouvelle politique industrielle par les territoires – Réseaux d'entreprises, vallées technologiques, pôles de compétitivité', available at [http://www.datar.gouv.fr/Datar_Site/DATAR_Actu.nsf/\\$ID_Dossier/CLAP-5WBDG6](http://www.datar.gouv.fr/Datar_Site/DATAR_Actu.nsf/$ID_Dossier/CLAP-5WBDG6). The web site on poles of competitiveness is www.competitivite.gouv.fr

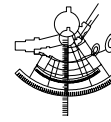
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The merger between ANVAR and the Bank for the development of SMEs (BDPME) into the OSEO in 2005 has clear implications for the governance of innovation at the regional level.³⁹ Both organisations benefit from an extensive local coverage, and combine their action so as to offer a complete range of funding possibilities (different instruments, including funding of Community origin) responding to the needs of enterprises that are converting from non-innovative to innovative methods and providing a single entry point. This 'rapprochement' is however still ongoing (see www.oseo.fr). This initiative parallels the creation of a General Directorate (26 January 2005) within the Ministry in charge of Industry, which is more clearly concerned with the objective of favouring innovation.

³⁹ The capital of the BDPME is divided between the State and the Caisse des Dépôts et Consignations. The National Agency for Enterprise Creation APCE and SME Development Agency ADPME are also involved in the project. A report was submitted to the Ministry for the Economy Finance and Industry in July 2004 by J.P. Denis, President of the BDPME who became in August 2004 also President of ANVAR.

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1.2 Appraisal of the governance system

1.2.1 Policy making and evaluation practices

The decision mechanism on policy design: evidence base, use of indicators and benchmarks, identification of priorities, involvement of stakeholders (business and the research Community).

Formally, research and innovation policy choices are made in the context of the annual law related to Research and development (BCRD, see above): the presentation of the draft of the law, related discussions which should set objectives, final validation by passing a vote on the budget.

Funding is distributed to the various Ministries in charge of innovation, mainly the Ministry in charge of Research and the Ministry in charge of Industry, but also to other technical ministries, who prepare the draft law in formulating their request of funding. To justify this request, each Ministry relies on documents produced by its own services or organisations.

The three relevant **consultative bodies of the Ministry in charge of Research** are the following:

- The CSRT (Conseil Supérieur de la Recherche et de la Technologie (CSRT) was set up in 1982. It is run by the Ministry in charge of Research and is chaired by the Minister. Its two colleges (20 members each, composed of representatives of the scientific and technical communities and research partners respectively) make it a forum where stakeholders can exchange views and be consulted. It is also expected to give advice on the project finance law, thus in principle, it meets at least once a year.⁴⁰ Although formally it can be proactive, it is not very effectively involved in the decision-making process. One possible explanation is its dependence on the Ministry in charge of Research which prevents it from acquiring an overall view.
- A Consultative Committee on Technological Development (CCDT)⁴¹ was created in 1998. It is composed of 15 acclaimed specialists in the fields of applied research, technological innovation and business creation. It is chaired by the Director of Technology of the Ministry in charge of Research and it is linked to the Académie des Sciences.
- The Comité National de la Recherche Scientifique at the CNRS is an assembly of a thousand national and international experts working as peers in evaluating research quality. The Committee also participates to the definition of research policy, through studies on performance and foresight.

However, these structures are rather disconnected from decision-making, on a more pragmatic basis, consultations with stakeholders often take place informally through bilateral contacts.

At the **Ministry in charge of Industry** the Permanent Commission of Consultation with Industry (CPCI) regularly expresses the views of the industry (through the representation of the MEDEF or the GFI).

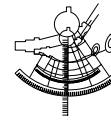
Other forms of consultations organised as conferences called “**Assises**” are also important. They are open to a larger public, and intended to gather current views and, on this basis, promote the consultation process more informally. The 1998 consultation (Assises de l’innovation) that led to the adoption of the 1999 Innovation and Research Law and the national consultation which took place at the occasion of the Innovation Plan in winter 2002 – 2003 are outstanding examples of this option.

Finally, a consultation process may be launched by the Prime Minister who assigns an expert as chairman of a **consultative (ad hoc) body on a specific subject** that may be related to research and innovation. The result of such a consultation process generally is a report that can be disseminated via the Internet and is often well covered by the press and R&D professionals and can feed into a public

⁴⁰ See for example the ‘Avis du CSRT sur le BCRD pour 2003’ adopted in October 2002 (available at <http://www.recherche.gouv.fr/conseil/csrt/2002/bcrd.htm>).

⁴¹ Comité Consultatif du Développement Technologique

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discussion of policy choices. The recent report by Jean-Louis Beffa (2005) or the report by Henry Guillaume in 1998 is among the most well-known examples.

Concerning **policy making based on indicators** in the field of research, there is a longstanding tradition of ex-post evaluation of research excellence by peers (see CNRS above). However, there is a lack in the use of indicators guiding R&D policy. The 2001 reform of the “financial constitution”, called “LOLF” (“Organic Law Relating to Public Accounts: 2001 – 2005”) aiming at replacing the dominating logic of means by a logic of results obliges all ministries to develop indicators of their performance. The first budget defined according to the new rules will be the budget 2006. To date, the indicators concerning research and innovation policy are not yet available.

The national statistical body in France is INSEE, with dependencies in the individual ministries: DEP, the direction of evaluation and foresight in the Ministry in charge of higher education and research, SESSI, the service of studies and statistics on industry matters in the Ministry in charge of industry.

Frequency and system of policy reviews (white books, parliamentary debates, internal assessments etc).

The most regular policy document is the text accompanying the annual budget on research and technological developments (“Projet de loi de finances 2005, Etat de la recherche et du développement technologique”, known as “**Jaunes**” which means “yellow paper”), presenting main actors, figures and actions in the domain of R&D.

The statistical departments of the ministries, **DEP**⁴² and **SESSI**⁴³, produce global indicators on a yearly basis and thematic reviews more frequently. However, it may take a long time to produce indicators, the delay of publication can take 2 years (i.e. R&D indicators on 2002 have been published in December 2004). SESSI produces, among others, industrial analyses reports on innovation-related issues, as for instance the innovation scoreboard (le Tableau de Bord de l’Innovation). Here, indicators published in April 2005 cover data up to the end of 2003.

Within Parliament, the **OPECST**⁴⁴ is a group consisting of 15 senators and 15 deputies producing analyses and studies on specific topics. Their work is generally of a very high quality, but publications are made less regularly (about 3 to 6 reports per year).

Otherwise, regular policy information is published on the news site of the specific **homepages** of the ministries in charge of research and industry, as well as on OSEO’s homepage. Moreover, the Division of Technology (Direction de la Technologie) of the Ministry in charge of research publishes an **annual report on innovation policy results** (“Mesures de soutien à l’innovation et au développement technologique”). This report provides information on the individual measures financed by the Ministry, in terms of financing and number, type and geographical origin of beneficiaries, and may be taken as a basis of decision about the future development of the measure.

The “Observatoire des Sciences et des Techniques” (**OST**) is a key institution in assembling indicators on research and technology and publishes a bi-annual report presenting data about the regional, national and European levels.

Foresight exercises are carried out but they generally deal with technologies in a strict sense. In particular, the Ministry in charge of Industry is at the origin of sectoral foresight studies as well as cross-technologies reviews. The “**Key Technologies**” exercise is an example of this.⁴⁵ Carried out every five years by an independent consulting firm, it consists of an in-depth study aiming to identify ‘key technologies’ and consequent policy priorities, also (and now mainly) at the regional level. There is, however, an important exception in this restricted approach to foresight exercise, namely the **FutuRIS** initiative. It provides a wide review of the many different aspects of the research and innovation system. It has significant strategic and policy dimensions and is intended to make an

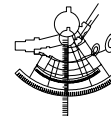
⁴² Direction de l’évaluation et de la prospective – Directorate of evaluation and foresight

⁴³ Service of industrial statistics, Ministry of Industry

⁴⁴ Office Parlementaire d’évaluation des choix scientifiques et techniques

⁴⁵ Re. the study ‘Key technologies for 2000’ Ministry in charge of Industry. The first issue was in 1995. The next issue is expected in 2005.

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important contribution to the redefinition of the place of research in the French society and economy (see section 2.1.3.).

In summary, policy documents are relatively easy to find in France and are produced on a relatively regular basis. However, they are either rather synthetic (as the “Jaunes”) or they only give a partial view (as for instance the “key technologies”). Moreover, they have little evaluative orientation.

Design of policy measures.

Policy design and its implementation fall within the responsibility of the ministers. Stakeholder involvement works through different channels but is not very formalised.

- There are consultative bodies and commissions (as explained above) that meet regularly. Their weight in policy preparation once more depends on the importance given to them by the minister him- or herself.
- Consultations can be launched on an ad hoc basis and often prepare the ground for a new policy initiative, as it was the case with the Blanc report on Competitiveness clusters⁴⁶, or the recent Beffa report to the President of the Republic, arguing in favour of a new innovation agency.
- Changing political orientations are balanced by the high autonomy of some institutions like the OSEO or research organisations who have their own annual budget and a high degree of autonomy in defining their activities.

Coordination mechanisms between organisations involved in policy-making related to innovation.

The Inter-ministerial Committee of Scientific and Technical Research (CIRST, Comité Interministeriel de la Recherche Scientifique et Technique) is in charge of coordinating all the concerned ministries and of defining priorities. Its importance depends on the weight successive governments give to it. Originally, it promoted important priorities like the need to put innovation at the heart of science and technology policy, or the need to open up research system to the socio-economic environment and to the international sphere. Over the years, however, the frequency of its meetings and its weight in decision making have diminished (meetings were held in 1998, 1999, twice in 2000, once in 2003).

Effective coordination is done more informally, on a problem-oriented basis.

Evaluation of innovation programmes.

The French evaluation culture has changed considerably since the mid 1990s: Formerly more or less reserved to the Court of Auditors (Cour des Comptes) and mainly concerned with the control of financial flows, the focus of evaluations has shifted as a series of more strategic policy evaluations have been undertaken more recently.

- Several instruments of innovation support have been evaluated by external experts, as for instance the reimbursable loan by ANVAR (now OSEO) (FR 1), or the incubators (FR 12).
- The national networks for Research and technical Innovation (RRIT, FR 17 - see section 2.1.4.) systematically undergo an ex-post evaluation, some are also subject to a mid-term evaluation.

Although there is no obligation to publish the results or the full reports of these evaluations, a number of them are made available on the Internet.

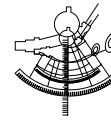
The “Commissariat Général du Plan”, a consultative body next to the Prime Minister, also carries out policy evaluations, some of which concern research and innovation policy.

In the future, according to the new Organic Law Relating to Public Accounts (LOLF), any policy measure has to formulate objectives, with related indicators, and has to be evaluated ex post.

It should be noted that in France, evaluations are foreseen some measures, such as the RRIT, right from the beginning and are considered as milestones for the measure. However, in other cases, no

⁴⁶ Pour un écosystème de la croissance : rapport au Premier ministre. Christian Blanc, France, Premier ministre, 2004.

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evaluation plan is established and evaluations, if any, are carried out on an ad hoc basis. The table below therefore indicates two ratings for this policy tool.

Nature of the evaluations carried out.

The following four types of evaluations exist:

- As mentioned earlier, open calls for evaluation carried out by external experts become more and more frequent since the end of the 1990s.
- Regarding opinions by consultative bodies, two institutions are to be mentioned: the National Committee of Research Evaluation (CNER) and the National Committee of Evaluation of higher education organisations (CNE). Both are in charge of evaluations in the domain of research or research and higher education, but they also cover issues like the commercialisation of research results.
- On the regional level, the Délégation à l'aménagement du territoire et à l'action régionale (DATAR) provides methodological support for regional actors who organise evaluations of the CPER (contracts between the State and the regions on public projects and combined financing, last round for 2000-2006). Since 2000, these contracts have to be evaluated at the initiative of regional bodies. DATAR also takes care of interaction with the European Commission and regional Prefectures in the evaluation of programs co-financed from the European structural funds.
- Internal reports by the Ministry are more frequent within the Directorate for Technology of the Ministry in charge of research than in the Ministry in charge of Industry. The former has for instance published the Report on Measures of support for innovation and technological research in April 2004.

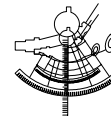
Transparency of the evaluation/review procedure.

The transparency of the evaluation/review procedure varies, as does the format of evaluations. If external experts are invited to conduct the evaluation, the procedure is formal and rather transparent: an open or restricted call for proposals is launched, the evaluator is selected, and a steering committee established.

It cannot be said that evaluations are published as a general rule, but the results are made publicly available more and more frequently.

The results of the evaluation are sometimes discussed, mainly within the concerned bodies or people, as for instance the board of a research and innovation network or programme. There are generally no debates in public, and results are generally not taken up by the press.

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Tool for policy making/evaluation	Criteria	Ranking (*, ** or ***)
Strategic policy making (national strategies, white papers, etc.): prevalence of evidence based and open consultation procedures	* Almost no background discussion, studies and stakeholder participation ** At least some of these activities are systematically pursued *** All of the above items are systematically taken into consideration	**
Existence of coordination mechanisms (high-level councils, inter-ministerial committees, etc.)	* No mechanisms for coordination ** Few, rather fragmented and bilateral coordination processes *** Well organised coherent system of policy coordination	**
Systematic review process for innovation policy	* Almost no policy documents and hence little assessment ** A few, ad hoc reviews *** Systematic policy review	***
Design and implementation of innovation policy measures	* Very centralised/closed system for designing and implementing policy ** Consultation and partnerships exist mainly on an ad hoc basis *** Systematic interaction with all stakeholders	**
Existence of an "evaluation culture" in field of innovation policy	* Rare evaluations of innovation measures only monitoring or auditing. ** Evaluations of measures are carried out on an ad hoc basis on the request of specific departments or funding bodies. *** Measures are systematically evaluated at key milestones in their implementation.	** - ***
External versus internal evaluations of innovation policy measures	* Evaluations are carried out internally as a general rule ** A share of evaluations are contracted out to independent contractors but this is not a generalised practice. *** Evaluations respect good practice criteria (involve systematically external experts, evidence based, quality appraisal of evaluation reports, etc.)	**
Transparency and publication of results of evaluations	* Little or no transparency concerning results of measures ** Evaluations and appraisals are published or debated occasionally *** All evaluations are published or discussed in a public forum.	**

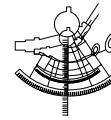
1.2.2 Policy benchmarking and trans-national learning

Mechanisms to systematically tap into strategic information on technology/innovation developments or innovation policies from other countries.

Benchmarking (i.e. comparing innovation performance, policy making and delivery processes and methods in a systematic fashion with specific benchmark countries or regions) is not an established practice in French policy-making, but it is on the increase. However, trans-national policy learning has a long-standing tradition, most notably in the shape of the 'economic intelligence' and 'technological and scientific watch'⁴⁷ carried out by specific services at French embassies (the DREE, Postes

⁴⁷ «veille scientifique et technologique».

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d'Expansion Economique') and by a specific Agency, the Association for the diffusion of technological information (ADIT). Created in 1992 and placed under the dual responsibility of the Ministry in charge of Research and the Ministry of Foreign Affairs, the ADIT gathers, processes and disseminates scientific and technological information aimed at enterprises. It is at the origin of numerous reports and publications, including '*Technologies internationales*', *France S&T*.

There is a growing tendency to look for examples from other countries, although this still tends to take place on an *ad hoc* basis and not always by targeting innovation in first place. In most cases, the 'partner' country is Germany, but other examples exist (USA or Israel for instance). One important development with a promising potential for further developments was the 'First Franco-German meeting for industrial competitiveness' organised by the Ministry in charge of Industry in Paris on 19 January 2004. The event brought together the two Deputy Ministers of Industry of Germany and France and many senior officials, industrialists and social partners in order to reflect on concrete proposals on how to enhance competitiveness, both in the two countries and in Europe as a whole. It was decided that such a meeting should take place every year with the objective of submitting proposals to Brussels (the next meeting is to take place in Berlin in 2005). Working groups should be established on specific topics and meet regularly.

There is an increasing number of benchmarking studies which testify the attempts to overcome certain reluctance for comparing and placing the country's performance into perspective. Using indicators for benchmarking purposes, especially when they come from foreign sources, used to be a sensitive issue. FutuRIS for example, produced in depth benchmarking studies to position the French Research and Innovation system in the wider international context.⁴⁸

Other studies are more specific, dealing with restricted topics, for example a study on RDT aid, a true benchmarking exercise aimed at identifying best practices⁴⁹ or a study on best practices in the pharmaceutical sector by Conseil Général des Mines.

In France, an approach is operated that combines *ad hoc* mechanisms that may have a considerable impact and very systematic efforts of technology watch.

Consideration of foreign experience in programme design

At the occasion of the CIR's overhaul (FR 5) for example, cases from abroad were examined. The same applies to the Competitiveness clusters project, the proposal for which makes explicit reference to examples from third countries.⁵⁰ Equally, the project to establish an Agency for SMEs resulting from the combined actions of ANVAR and BDPME draws on the US Small Business Innovation Research Programme (SBIR). There are also individual initiatives taken by enlightened single policy-makers in charge of innovation-related issues. For example, a Franco-German benchmarking study could be produced on Industry-Science relationships by a civil servant at the Ministry in charge of Research at the occasion of a visiting scholarship at the Ministry of a German colleague. Overall, there is an increasing tendency to look for examples abroad, but no formal procedures are at work. In the end, much depends on the alertness of the policy makers in charge.

This growing use of benchmarking is not necessarily a one-way process. One example is the proposal by the Ministry in charge of Research to replicate the 'National award for the creation of young innovative firms' (FR 11) At a European level.

Policy learning processes

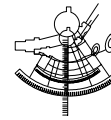
The French administration is based on a very traditional and rather closed recruiting system of civil servants. There are hardly any openings for non-civil servants to work in public administration. There are no initiatives on the national level concerning staff exchange.

⁴⁸ See for example 'Le benchmarking des politiques de la science, de la technologie et de l'innovation' Document de travail préparé par R. Barré et S. Paillard, Collection FutuRIS, 11 July 2003.

⁴⁹ See 'Rapport d'Enquête sur les dispositifs étrangers d'aide à la création et au développement des entreprises', Inspection Générale des Finances, Conseil Général des Mines, October 2002. Available at www.cgm.org/rapports/publi.html.

⁵⁰ See Rapport Blanc, op.cit.

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The only exceptions to this rule are recent initiatives within the framework of the ERA-Net which include a staff exchange element for all participating agencies.

Involvement in trans-national networks for innovation policy learning

Usually, OSEO/ANVAR is the French partner in international networks like TAFTIE or the various ERA-Nets.

Within OECD working groups, France is represented by delegates of the relevant Ministries. The Ministry in charge of Research is a key contributor to the work of the OECD and participates to various committees (for example, the Scientific and Technological Policy Committee and the TIP – Technology and Innovation Policy) and working groups. One example of the outcome of such a co-operation is the evaluation of RRIT carried out jointly by the Ministry and the OECD (see Section 4.3.3).

Use of international benchmarking exercises to assess national performance on innovation and/or innovation policy.

France participates in OECD benchmarking exercises, but there is no evidence of their impact on national policy making.

Even if international benchmarking exercises may generate a discussion on the national level, and if international comparison is mentioned as an argument for the need for change and reform (as for instance in the Beffa Report in early 2005), there is no systematic mechanism that ensures benchmarking results are taken into account when policy is defined.

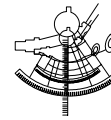
Implementation of co-operation with other countries

French partners participate in several ERA-Nets aimed at mutual learning in research and innovation policy practice. On the bilateral level, there is a common research programme with Germany in the area of transport (DEUFRAGO) and the national networks for research and technological innovation (RRIT) may include an option for foreign partnerships in projects. However, no funding is provided for the foreign partner(s).

Bilateral agreements, often aimed at enhancing researcher mobility, exist with many countries, but more so in the field of research than with regard to development. The most important mechanism for bilateral support to innovation is the Eureka initiative.

Tool for policy learning	Criteria	Ranking (*, ** or ***)
Formal mechanisms for policy learning (studies, innovation observatories, study visits, etc.)	* No mechanisms exists ** Ad hoc mechanisms *** Very systematic efforts	** - ***
Application of foreign experience in designing measures (e.g. involvement of foreign experts in design phase)	* No or very occasionally ** Occasional or ad hoc basis *** Systematically	**
Policy learning process	* No ** Ad hoc *** Systematic schemes	*
Involvement in transnational networks (e.g. TAFTIE, etc.)	* No ** Yes to one *** Yes to all	***
Use of international benchmarking exercises	* No ** Ad hoc benchmarking exercises *** Benchmarking is a systematic process & results are incorporated into policy	**
Implementation of co-operation with other countries	* There is no formal co-operation ** There are common innovation actions responding to specific opportunities *** Many longer terms agreements	***

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1.2.3 SWOT of the National Innovation Governance System

Table 3: National Innovation Governance System SWOT overview

Strengths	Weaknesses
<ul style="list-style-type: none"> • Documentation of the R&D policy • Public consultation mechanisms and reporting • Inter-ministerial coordination in networks 	<ul style="list-style-type: none"> • No downstream follow-up of innovation policy measures, no dedicated bodies for the management of research and innovation programmes • Systematic policy learning from international benchmarking • Weak opportunities for policy learning through international exchanges
Opportunities	Threats
<ul style="list-style-type: none"> • Increased use of evaluations • Increased use of indicators, both on the national and on the regional level • Creation of new agencies <ul style="list-style-type: none"> ○ All for big innovation programmes ○ Horizontal integration of innovation support within OSEO 	<ul style="list-style-type: none"> • Dispersion of actors supporting innovation, multiplicity of innovation agencies both on the national level (OSEA, All) and on the regional level.

Three recent reports to different public institutions address some of the key elements of the SWOT analysis.

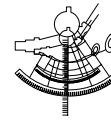
- A report to the Economic and Social Council by F. Ailleret⁵¹ highlights that the technical potential to support innovation and technological transfer is rich but too widespread, lacking coherence and varying in quality (ANVAR is excepted from this assessment). The report also stresses that support to innovation was very diverse, complex, and coming from a multitude of actors, thus making support more difficult to access for SMEs. Finally, the report assesses that SMEs were not very concerned about CNRT or RRIT (see 2.1.4), which suggests that the French technological research institutes are less powerful and more widespread than in other countries.
- Two publications intended for enterprise networks were published in the first half of 2004. In February the DATAR published a report "France, an industrial power. A new regionally-based industrial policy. Enterprise networks, technology valleys, centres of competitiveness." In April Christian Blanc submitted a report entitled "An ecosystem for growth"⁵² to the Prime Minister, a parliamentary report dealing with competitiveness clusters (*pôles de compétitivité*). The DATAR report shows that enterprise networks are developing worldwide (there are already more than 460 in Europe). DATAR concludes that competitiveness of enterprises depends more and more on the quality of enterprise networks and on the connections between enterprises, research, training and geographical area. The same idea was developed by Christian Blanc. According to his report, universities and research organisations need to provide better support for applied research intended to benefit commercial partners. Competitiveness clusters supported by the Regions as meeting places for enterprises, research organisations and local administrative structures can facilitate interactions between know-how and innovation. The central objective of the report is to make generate economic growth rates of 3% in France, based primarily on innovation.
- The need to raise industrial R&D spending in order to increase the contribution of industry to national wealth in the context of the opening up of the economy to international trade and applying the rules of the European Union is the main argument of the Beffa report⁵³ on "Renewing industrial policy" (see 2.1.3.3.).

⁵¹ Ailleret François, 2003, *Economie de la connaissance : la recherche publique française et les entreprises*, Conseil économique et social, available at : <http://www.ces.fr/rapport/docton/03121725.pdf>

⁵² Blanc C., 2004, *An ecosystem for growth*, Available at <http://www.ladocumentationfrancaise.fr/brp/notices/044000181.shtml>.

⁵³ Beffa, Jean-Louis, *Pour une nouvelle politique industrielle*, 2005, Available in English at : www.rapport-jeanlouisbeffa.com/pdf/RapportJean-LouisBeffa_english.pdf

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2 Developments in Innovation policy

2.1 Overview of trends in performance and policy

2.1.1 Recent trends in innovation performance and competitiveness

In 2004, France's **Gross Domestic Product per Capita** in PPS was 10.9 percent above the EU 25 average, thus depicting the French economy as a very productive one. However, GDP per capita is similar or higher in Ireland, the United-Kingdom, the Netherlands, Austria, Denmark and Belgium. The comparison turns more positive for France if labour productivity per person is considered. French labour productivity per person employed is one of the highest in the EU (19.2 percent above the EU25 average), which means that French workers produce more than the average EU worker. Only Belgium and Ireland have a better rating than France (28 percent above the EU25 average). **Total employment growth** between 2003 and 2004 has seen a negative development, decreasing by 0.1 percent, while the EU25 average rose by 0.2 percent.

During the second half of the 1990s, the French economy grew strongly, with figures above the average of the euro area. The recovery was based on a strong domestic demand boosted by tax cuts, an investment boom and a more relaxed fiscal policy at the end of the 1990s. It was accompanied by strong employment growth. The specificity of this period was indeed that the "employment content" of growth was higher than in the past, in part due to important structural reforms that reduced labour costs.

Following this period of rapid **expansion at the end of the 1990s**, trends for output growth slowed down until 2003, but increased again in 2004. GDP increased by 1.2 percent in 2002, with the growth rate slowing down to 0.5 percent in 2003 and picking up again with 2.4 percent in 2004. However, the sustained employment growth rate, which rose throughout the 1990s and until 2002, fell again in 2003.

Table 4: Comparable indicators of economic performance

Indicator	National performance		EU 25 average	
	2000	2004*	2000	2004*
GDP per capita in PPS (EU25=100)	114	110.9	100	100
Real GDP growth rate (% change previous year)	3,8	2.4	3.9	2.3
Labour productivity per person employed (EU25=100)	123	119.2	100	100
Total employment growth (annual % change)	2,7	-0,1*	1.4	0.2*
Inflation rate (average annual)	1,8	2,3	2.4	2.1
Unit labour costs (growth rate)	-0,1	-1.4	0.4	-0.3*
Public balance (net borrowing/lending) as a % of GDP	-1.4	-4,1*	0.8	-2.8*
Employment rate (as % of 15-64 population)	62,1	63,2*	62.4	63*
Unemployment rate (as % of active population)	9,1	9,6	8.6	9
Trade integration of good ((imports+exports)/GDP)	22,9	20,5*	-	9*
Trade integration of services ((imports+exports)/GDP)	5,4	5,2*	-	3.2*
Foreign direct investment intensity	8,3	3*	-	1.2*
Business investment as a percentage of GDP	17	15,9*	18.4	16.8*

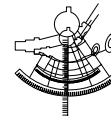
Source: Eurostat - Structural Indicators and Long-term Indicators <http://epp.eurostat.ec.eu.int>

* or latest available year (2003)

Beginning in 2001, **investment and exports** started to decrease, while company debt increased in the context of a global downturn. A further decrease in GDP growth was prevented by strong consumer demand (supported by tax cuts) and government spending.

Company investment activity declined in 2002-03 but this development coincided with the consolidation of balance sheets, which left many companies in a better position in spite of some high remaining high debt levels. High **inflation, which had persisted** since 1999 started to decelerate as

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of 2002.⁵⁴ Throughout the 1990s, moderate aggregate wage growth with real wages increasing in line with or below productivity developments led to a good inflation and employment performance. Overall, the increase in **labour costs** accelerated as of 2001 although compared to other EU countries, France's position has not really deteriorated. **Productivity** per hour was around 40 percent higher than in the UK, 50 percent higher than in Japan and 18 percent higher than in Germany. These figures show little evolution since the mid-1990s. A change could only be noticed in comparison to the US productivity rate, which increased from 15 percent to 24 percent above the EU 25 average in 2002-2003. In contrast, the comparison of GDP per capita rates is less favourable. France is just slightly above the EU average and about 30 percent below the US level. In part, this can be partly explained by the lower average number of days worked in the EU.

Thus, after an acceleration of productivity (defined as production / worked hour) in the second half of the 1990s, labour productivity held on between 1996 and 2002 (+1.6 percent as opposed to +1.3 percent for the EU25). Labour productivity is slightly above the EU average at present.

Meanwhile, the slowdown in the growth rate in world trade in 2001, which persisted into 2002, explains the deceleration of both exports and imports and the resulting stable trade balance. In 2003, exports and imports of goods and services represented 20.5 percent and 5.2 percent of GDP respectively. In terms of foreign direct investments (FDI) intensity, France experienced a considerable decline (from 8.3 in 2000 to 3 in 2003), but the intensity remains above the EU 25 average (see table 4).

Fiscal policy became quite expansive in 2002, but the objectives fixed by the Government were largely missed. In 2002, the general government budget deficit was 3.2 percent of GDP, as opposed to a planned 1.4 percent. In 2003, the deficit was 4.1 percent of GDP (with government debt at 63 percent of GDP), which prompted the European Commission to launch excessive deficit procedures against France under the terms of the Stability and Growth pact.

The fundamental conditions now look healthy with corporate and household balance sheets in good shape. This has led to the OECD predicting an acceleration of growth for the French economy once international uncertainty dissipates.⁵⁵

The link between general macro-economic conditions and **innovation performance** is not straightforward. France has benefited from courageous earlier choices (the "Strong Franc" policy engaged since 1983), which enabled the country to withstand several challenges and develop steady productivity gains without recording excellent innovation performance. However, the mood has recently turned gloomy as illustrated by a debate on the French "decline".⁵⁶ In particular, there is an awareness that the country's current innovation performance in general, and R&D expenditure in particular, is not sufficient to ensure a sustainable growth path and defend French competitiveness in the long term. Accordingly, the 26th position of France in the World Competitiveness Report, which classes countries according to their level of competitiveness, would seem not to be due to the country's macroeconomic environment but to the perception of weak performance in terms of its innovation potential.⁵⁷

General economic performance and innovation performance clearly suffer from the same structural rigidities that characterise the French economy as a whole. They should consequently also benefit from current efforts to ease the administrative complexity of the regulatory environment. At the same time, the French economy has to deal with significant medium term challenges such as the ageing population, which represents a severe fiscal constraint requiring very specific and rather rapid responses that may obscure the necessity of carrying out parallel efforts to improve innovation performance.

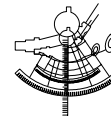
⁵⁴ The introduction of the euro was estimated to have raised inflation by between 0.14 (INSEE, 2002) and 0.2 (Bank of France) percentage points, about the same increase as observed in other euro zone countries. See OECD, 2003.

⁵⁵ See OECD, 2003.

⁵⁶ An example is the dismal diagnostic proposed by N. Baverez in *La France qui tombe*, (Paris: Perrin 2003)

⁵⁷ See World Competitiveness Report 2003 – 2004, World Economic Forum, Davos.

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With 2.19 percent of its **GDP devoted to R&D expenditure** (GERD/GDP) in 2003⁵⁸, France does not look very strongly positioned compared to the 3 percent Lisbon objective, but its R&D expenditure is nevertheless the fifth highest in the EU after Sweden, Denmark, Spain and Germany. Worryingly, trends have shown a stagnation over the last ten years and even a decline since the mid-1990s, which has been mitigated recently.

One peculiarity of the French R&D system is that the GERD remained dominated by public spending throughout the 1980s. Countries such as the UK or the US, in contrast, had a similar structure than France in the early 1980s, but private (industrial) R&D investments then began to grow rapidly and have exceeded over public spending on R&D ever since. In France, private GERD overtook public GERD in 1992 (1.1 percent private, 1.0 percent public)⁵⁹ and reached 1.36 percent compared to 0.83 percent in 2003. France has still a low proportion of industrial GERD and, conversely, one of the highest proportions of public GERD (2nd place in Europe in 2000). According to EIS 2004 figures, **public and private R&D expenditures** are both slightly above EU average, but there is a below average trend for private R&D. The decline of public R&D expenditure (in part due to decrease of the defence R&D budget) has not been properly taken over by industrial R&D, resulting in a reduction of overall R&D expenditure between 1993 (a peak at 2.40 percent) and 1999, when it declined to a level lower than that of 1985. Noticeable increases had again been recorded since 1999, but this tendency seems to have been halted in 2003. The overall objective of having two thirds of GERD financed by private enterprise by 2010 (set in Barcelona) has not yet been reached.

In 2002, researchers as a percentage of total **R&D personnel** represented 54 percent whereas the EU25 average was 57 percent. And around 70 percent of the business enterprise sector researchers work for large companies of more than 500 employees. R&D personnel in France represents 1.7% of the whole work force, which puts France in 6th position EU-wide, behind Finland, Sweden, Denmark, Belgium and Germany⁶⁰.

With 6.55 researchers per 1000 persons employed (2001) France is slightly above the EU average (5.68) and occupies the 6th place⁶¹. However, France is one of the countries where the rise in the number of researchers in the active population is slowest. The country is also slightly below the EU average with respect to professional publications (779 per million inhabitants).

Performance regarding **patenting indicators** also puts France in a slightly worse than average position (147 patents per million inhabitants). This puts France in 10th place EU-wide. Between 1995 and 2000, trends in France were even the slowest recorded in the entire EU. A good performance in the biotechnology sector is worth mentioning, however. Also, patents in the ICT sector record better performance with trends close to the EU average. It should also be underlined that the interpretation of patenting indicators is controversial. It is not clear whether the indicators reflect weak innovation capacities in the country, a weak propensity to use strategic patenting (due to France's industrial structure), a relatively narrow definition of the 'patentable' field, or a combination of these factors.⁶²

France records both strengths and weaknesses with regard to its **human resources**. In 2001, France's supply of new S&E graduates was 63 percent above the EU average. The trend for the future development is close to the EU average. However, in 2002, only 64 percent of the 25-64 year olds had at least an upper secondary education, compared to 83 percent in Germany, 81.7 percent in the UK, and 81 percent in Sweden. Lifelong learning, in contrast, may have been the EIS innovation indicator for which France recorded the lowest scores until 2002 (2.7 percent, 68 percent above the EU 25 average), but its performance has clearly improved recently. The trend began to improve in 2003 and life long learning now concerns 7.4 percent of the population. This puts France in 12th position EU-wide. Total expenditure on higher education is also slightly above the EU average in France, although expenditure per student is among the slowest in the EU. Employment in high tech manufacturing is slightly below the EU average.

⁵⁸ See Eurostat, (2005) *Research & Development in the EU: EU25 spent nearly 2% of GDP on Research and Development in 2002*.

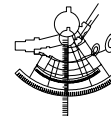
⁵⁹ As noted by Technopolis France (2003), in 1992, France Télécom and GIAT were 'privatised' with implications for R&D figures.

⁶⁰ See Eurostat (2005), *Science and Technology in Europe. Statistical Pocketbook. Data 1993-2003*

⁶¹ See European Commission (2003), *Key figures 2003-2004*.

⁶² See R. Barré, S. Paillard (2003).

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France performs well with regard to the percentage of manufacturing **SMEs** active in innovation co-operation. Nevertheless, the share of SMEs that innovate in-house is slightly below the EU average. According to CIS2 results, the highest percentage of innovative firms (both process and product) can be recorded in the electrical and electronics sectors, as well as the chemicals and pharmaceuticals industries.

After catching up since 1998, France is now near the EU average for **internet access and ICT expenditure** (7.4 percent of GDP in 2000). The French share of high tech exports in the world (at 7.43 percent in 2001) has some strength. It represents more than 20 percent at a European level and high-tech exports represent 25.6 percent of the total French exports in 2001⁶³.

Finally, in innovation funding, France was above to the EU average for the supply of both early stage and high tech **venture capital**. It is worth noting that private R&D financed through financial markets has increased strongly in the 1990s, but the level is still very low (0.8 percent in 1990 and 1.8 percent in 2000).

The share of public funding of R&D attributable to **regions** is very low at 1.4 percent in 2000 (one percent in 1990). The bulk of public R&D expenditure is provided by the state (94 percent in 1990, 88.2 percent in 2000), while the relevant European funds account for the remaining share of public R&D funding (five percent in 1990 and 10.4 percent in 2000). However, there are considerable regional disparities. Other than higher education, which is well distributed throughout the whole country, the research potential is concentrated in a few big 'poles' (Ile-de-France, Alsace, Provence Alpes Côte d'Azur, Midi Pyrénées, Rhône Alpes).

In 2002, 46.2 percent of industrial GERD, and 36.1 percent of public GERD was concentrated in the Ile de France region. Four regions exceeded the average ratio of R&D staff per total number of employees (equivalent full time): Ile de France, Midi Pyrénées, Rhône Alpes, and Franche-Comté. These higher scores result either from the contribution of private R&D (Franche Comté) or from a combination of private and public contributions (Ile de France, Midi Pyrénées, Rhône Alpes).

In general, as argued in the 2004 EIS, France occupies an average position for innovation performance. For most indicators, the country's innovation performance is close to or above the EU average. There is some concern that France shows a below average or near average trend for all but one indicator for which trend data are available (for example high-tech patent applications and the percentage of the working age population). The only notable exception is the percentage of the working age population with a tertiary education, which has a very dynamic performance. Overall, according to the EIS categories, France is losing momentum if not falling further behind.

⁶³ See European Commission (2003), Key figures 2003-2004.

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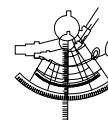
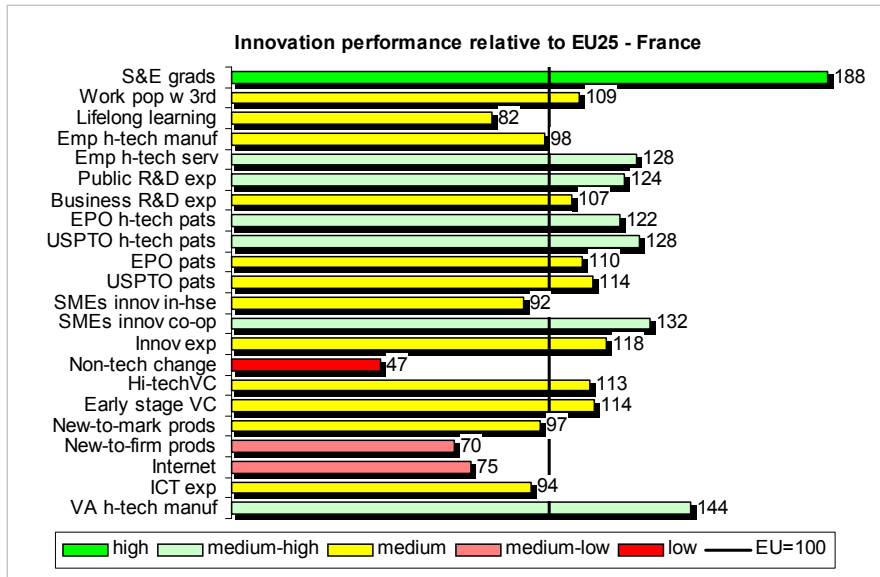
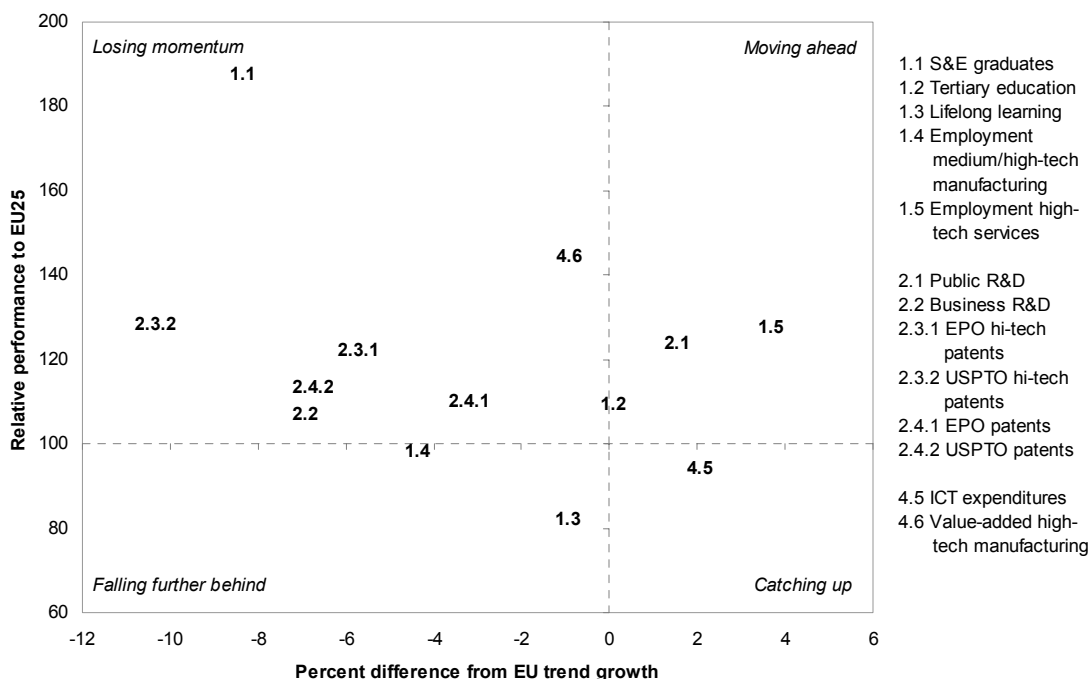


Diagram 2: EIS2004 country summary

2004 European Innovation Scoreboard - FRANCE



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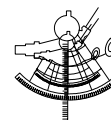
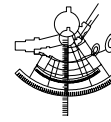


Table 5: National trends in EIS indicators vs EU25⁶⁴

FRANCE										Latest (EU25 =100)	Rank among EU25	Current (1)	Trend (2)
Human resources													
1.1	S&E graduates	--	17.5	18.5	19.0	19.6	20.2	--	--	188	1	++	0
	<i>relative to EU15</i>	--	170	173	171	172	163	--	--				
1.2	Work pop w 3rd educ	--	--	20.1	20.9	21.6	22.6	23.5	23.1	109	13	0	0
	<i>relative to EU15</i>	--	--	117	102	102	105	108	--				
1.3	Lifelong learning	2.7	2.9	2.7	2.6	2.8	2.7	2.7	7.4	82	12	0	0
	<i>relative to EU15</i>	47	50	--	32	33	32	32	76				
1.4	Employment hi-tech manuf	--	7.10	6.97	7.23	7.23	7.16	6.82	6.50	98	10	0	0
	<i>relative to EU15</i>	--	93	90	95	95	95	93	92				
1.5	Employment hi-tech serv	--	3.57	3.58	3.83	3.86	4.07	4.06	4.07	128	5	+	0
	<i>relative to EU15</i>	--	121	120	120	114	113	114	117				
Knowledge creation													
2.1	Public R&D exp	0.89	0.83	0.82	0.80	0.82	0.82	0.83	0.83	124	3	+	0
	<i>relative to EU15</i>	127	122	121	119	121	121	120	--				
2.2	Business R&D exp	1.41	1.39	1.35	1.38	1.36	1.41	1.43	1.36	107	7	0	0
	<i>relative to EU15</i>	119	117	113	110	107	108	110	--				
2.3.1	EPO hi-tech patents	12.4	15.4	20.2	24.6	29.0	31.8	31.8	--	122	7	+	0
	<i>relative to EU15</i>	105	101	104	106	99	94	103	--				
2.3.2	USPTO hi-tech patents	8.1	7.3	10.5	10.9	10.7	11.9	12.1	--	128	7	+	-
	<i>relative to EU15</i>	145	136	123	120	112	109	107	--				
2.4.1	EPO patents	99.6	110.4	125.7	131.0	144.4	150.2	147.2	--	110	9	0	0
	<i>relative to EU15</i>	103	96	97	93	91	89	93	--				
2.4.2	USPTO patents	48.3	51.1	63.3	65.4	65.4	68.9	68.1	--	114	8	0	0
	<i>relative to EU15</i>	107	108	104	104	98	96	95	--				
Transmission and application of knowledge													
3.1	SMEs innov in-house	--	--	--	--	29.2	--	--	--	92	11	0	
3.2	SMEs innov co-operation	--	--	--	--	9.3	--	--	--	132	9	+	
3.3	Innovation expenditures	--	--	--	--	2.53	--	--	--	118	6	0	
3.4	SMEs non-tech innov	--	--	--	--	23	--	--	--	47	19	--	
Innovation finance, output and markets													
4.1	Hi-tech venture capital	--	--	--	--	52	52	60	57	113	3	0	(3)
	<i>relative to EU15</i>	--	--	--	--	106	104	116	113				
4.2	Early stage venture capital	0.005	0.008	0.014	0.029	0.060	0.060	0.035	0.029	114	5	0	(3)
	<i>relative to EU15</i>	91	94	90	100	105	99	95	114				
4.3.1	New-to-market products	--	--	--	--	5.7	--	--	--	97	9	0	
4.3.2	New-to-firm products	--	--	--	--	11.7	--	--	--	70	11	-	
4.4	Internet (comp. indicator)	--	--	--	--	--	--	0.34	--	--	15		
4.5	ICT expenditures	--	--	--	--	5.9	6.0	5.8	5.9	94	19	0	0
	<i>relative to EU15</i>	--	--	--	--	91	94	95	95				
4.6	Value-added hi-tech manuf	15.5	16.4	16.4	16.7	17.8	18.3	--	--	144	5	+	0
	<i>relative to EU15</i>	133	134	131	127	130	130	--	--				
Macro-economic indicators													
	GDP per capita (EU25=100)	--	--	115	115	115	116	116	114				
	Productivity per hour (EU15=100)	116	118	119	118	120	122	122	124				
	Employment rate	60	60	60	61	62	63	63	63	100			

⁶⁴ Value in **bold**: break in series. (1) Current strength “++” if relative to EU25 performance above 150, “+” if above 120, “0” if between 80 and 120, current weakness “-” if below 80, “--” if below 50. (2) Trend strength “++” if relative to EU25 trend above 25, “+” is above 10, “0” if between -10 and 10, trend weakness “-” if below -10, “--” if below -25. (3) Trend data for both venture capital indicators have not been used as these data suffer from high year-to-year fluctuations and are considered to be less reliable.

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2.1.2 Innovation policy objectives

As stated in successive Finance Laws, the main objectives of the French innovation policy geared towards increasing competitiveness are: growth and employment, creating a bridge between public and private research, supporting innovation activities in the industrial sector and especially to supporting the development of a fabric of high-technology based SMEs.

A very important initiative taken in the field of innovation policy in the last few years was **the Innovation and Research Act of 12 July 1999** ("Loi Allègre")⁶⁵, which was designed to modernise and reorganise the French innovation system. The Act was the final result of a process of evaluation and consultation on how best to commercialise France's research potential initiated by the Guillaume report (1998)⁶⁶ and followed up by the Assises of Innovation (1998).

The objectives of the Act were to facilitate and promote technology transfers from public research to industry and to foster the creation of innovative enterprises. Four series of measures were provided by the Act:

1. Promotion of personnel mobility from research to enterprises by allowing researchers from public institutions to establish their own firms, act as consultants, or invest in firms that exploit commercially their research
2. Encourage co-operation between public research and enterprises by creating technology transfer offices (SAIC) and simplifying administrative formalities
3. Improve the fiscal framework to encourage staff participation in young enterprises, develop mutual funds for innovation (FCPI) and make the R&D tax exemption (CIR) more advantageous for innovative companies
4. Provide juridical incentives for young innovative companies by granting them a special "favourable status" (SAS)

In addition to the Innovation Act two of the other measures that have since been taken ought to be mentioned:

- The call for projects for the creation of incubators and seed-capital funds, March 1999
- The national competition for the creation of new technology-based firms, which was first launched in 1999

This framework has dominated the innovation policy agenda until now; these years were in fact dedicated to the implementation of the Innovation Act.

In the policy sphere, the increased level of attention paid to innovation policy as a priority of the Ministry in charge of Industry dates back to 1999/2000. To update the 1999 Law and to complete its implementation, the Ministry in charge of Research and the Ministry in charge of Industry jointly presented a **Plan for Innovation**⁶⁷ in December 2002. The objective of the Plan is to provide a general framework encouraging partnerships between public research and socio-economic actors. More specifically, it seeks to encourage the creation (also by researchers) and development of innovative enterprises, the consolidation of private public partnerships, the development of industrial research and the integration of young researchers within enterprises.

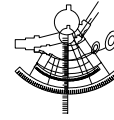
The Plan was discussed by stakeholders in a national consultation which lasted three months. Views (in the shape of answers to a questionnaire) were gathered on the websites of the Ministries in charge of Research and of Industry. The measures proposed in the Plan were submitted to the wider public. Most of them were met with approval by around 80 percent of the respondents to the questionnaire. The revised version of the Plan, which takes into account the comments and reactions of stakeholders, forms the basis for new innovation measures presented in April 2003. The main targets of the Plan are:

⁶⁵ Cf. Innovation PIF "France – The 1999 Innovation Act", published online 07/07/00.

⁶⁶ Cf. Innovation PIF "France – The Henri Guillaume report on innovation in 1998", published online 07/07/00.

⁶⁷ Cf. Innovation PIF "France: Innovation Plan - Revised after National Consultation - April 2003", published online 06/08/03.

European Trend Chart on Innovation



1. Better legal conditions for investors and innovative SMEs: creation of a business angel status (Société Unipersonnelle d'Investissement à risque – SUIR)
2. Tax exemptions: aid to projects of young innovative enterprises (Aide aux projets de R&D des “Jeunes Entreprises Innovantes” APJEL)
3. New targeted aid to support innovation and a consolidation of the current regime of R&D tax exemption (CIR)
4. Better definition of ANVAR's competence at the local level
5. Reinforce commercial exploitation of public research by enterprises and strengthen instruments to establish public-private partnerships (CIFRE, RRIT...), prolongation of financial support to and consolidation of incubators after evaluation
6. Measures to encourage the emergence of a ‘culture of innovation’
7. Government support to strategic industrial R&D in specific sectors, emergence of “poles of excellence”.

All of these measures have been implemented since the publication of the Plan.

2.1.3 Policy events & policy debates

2.1.3.1 Wide national debate on the place of research in the French society⁶⁸

In April/May 2004, a strong protest movement developed in the research community against the decision of the Ministry in charge of Research at the time to change the status of 550 lifelong research positions and transform them into fixed term contracts. This unveiled a profound unease throughout the French research system. The dismissal of more than 2000 heads of laboratories from their administrative functions on 19 March 2004 and many public demonstrations or communications⁶⁹ dramatically highlighted very sensitive issues such as a severe lack of funding, excessive administrative burdens and, more fundamentally, the inadequacy of the status of researcher as defined by the legislation in force (a law dating from 1982 guaranteeing researchers lifelong employment and full time position as civil servants).

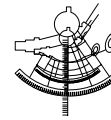
Apart from the reintegration of these 550 positions into the normal civil service structures and the creation of a further 1000 university positions, the movement generated a vivid national debate and the development of initiatives (e.g. the collective movement “Sauvons la recherche”) to gather views and make proposals in view of influencing the definition of the new orientation and programming act on research. An “Initiative and Proposal Committee” (Comité d'Initiative et de Proposition – CIP) was set up at the initiative of Sauvons la Recherche and the Académie des Sciences. The States General on Research gathered thousands of people from March to October 2004, first at the regional level, then at the national level in Grenoble (27-29 October 2004). The final report of the States General was presented by the CIP and it analyses the state of public research in France before concluding with a set of proposed reforms of the sector.⁷⁰ The conclusions and recommendations of the States General on Research are expected to be an input for the orientation and programming act on research. Initially expected by the end of 2004, the opposition of researchers, universities and other associations (several demonstrations occurred in March 2005) forced the Government to continue working on the text. The final proposal should be presented by the Government in May-June 2005. The Act is now expected to enter into force by the end of 2005.

⁶⁸ Cf. Innovation PIF “France – Ongoing public debate on the role of research in the French economy and society”, webpublished 10/09/04.

⁶⁹ For example, in March 2004, four highly respected scientists (of whom 2 Nobel Prizes), all professors at ‘Collège de France’ and members of the ‘Académie des Sciences’ (F. Jacob, P. Kourilsky, J.M. Lehn, P.L. Lions) published a manifesto called ‘Du NERF – Donner un Nouvel Essor à la Recherche Française’. See www.pasteur.fr/pasteur/dunerf.html

⁷⁰ Rapport des Etats Généraux de la Recherche, November 2004, available at: <http://cip-etats-generaux.apinc.org/IMG/pdf/synthese-finale-EG.pdf>

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2.1.3.2 The French foresight exercise FutuRIS⁷¹

The FutuRIS project potentially plays an important role in defining the future direction of research and innovation policy in France. It is the first systematic foresight exercise with a specific and rigorous methodology carried out in France. Co-financed by government and RTD performing enterprises, FutuRIS offers a platform for a collective discussion on the role of research and innovation in the French society within Europe.

It started by exploring possible scenarios for research and innovation until 2020 and then deduced some recommendations to support decision-makers. Launched in February 2003, i.e. before the wider debate on research, FutuRIS developed at an appropriate time to feed into the new orientation and programming Law on Research, now expected by the end of 2005.

Since autumn 2004, and until its end in June 2005, FutuRIS launched some new expert groups to focus on a selection of key issues. Some of them are directly connected to innovation policy:

- enhancing the reactivity of the French research and innovation system
- factors of France attractiveness in the field of RTD
- development of innovative firms
- studies of sectoral systems of innovation

FutuRIS is arguably well-known by the main actors involved in the management of the research and innovation system. Even though it is quite uncertain whether the expected new Law on Research will deal with innovation policy, analyses and recommendations emanating from FutuRIS should be seen as a sound contribution to the national debate on this issue.

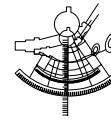
2.1.3.3 The Beffa report: Towards a new industrial policy

Jean-Louis Beffa's report on French industry policy was released on 17 January 2005.⁷² Its main conclusion is that French industry is currently specialised in low-tech sectors, which explains the relative industrial decline of France. Beffa argues that French public R&D funding is not spent usefully. Indeed, 80% of French public R&D expenditure is earmarked for defence projects and large historical public programmes (like Minitel, Concorde) instead of supporting large private companies. The report points out the United States and Japan as good examples of industrial specialisation. In the United States, the success is based on measures that encourage technology transfer between the public and private sectors and concentrate on very few interdisciplinary sectors. In Japan, innovation policy is organised around national priorities implemented through cooperation between the State, industry sector and the universities.

The author's recommendations are to promote a new industrial policy based on the creation of a new agency, the Agency for Industrial Innovation (AII). One of AII's main tasks will be to manage and coordinate medium-term public programmes for industrial innovation, called *Programmes mobilisateurs pour l'innovation industrielle* (PMII). These programmes must respond to real and large tasks, include a wide technological innovation and involve industrial firms. On average, one PMII should have a volume of between 30 and 200 million euro. In future, these programmes could open to European firms in an intergovernmental framework. The AII should rely on the forthcoming competitiveness clusters. The AII overall budget requirement is estimated at one million euro per year. This agency, which is planned to be set up before summer 2005, will complete the two other research and innovation measures recently adopted in France. Indeed, the National Agency for Research (ANR), the agency for innovating SMEs (OSEO) and the AII constitute the three pillars of the French research and innovation reform.

⁷¹ www.operation-futuris.org

⁷² Report available at: <http://www.rapport-jeanlouisbeffa.com/pdf/RapportJean-LouisBeffa.pdf>



2.1.4 Key developments in innovation policy

The TrendChart policy monitoring exercise tracks developments in innovation policy not only at the level of policy definitions and overall objectives as discussed in the previous sections, but also through the compilation of information in analytical structure on specific innovation policy measures (IPM). At the present time, the TrendChart innovation policy database contains over 1100 IPM fiche detailing measures implemented in 32 European countries (all countries covered by the TrendChart except Liechtenstein). An innovation policy measure is defined broadly to include any public policy initiative that directly or indirectly impacts on the innovation process in the enterprise sector. In practice, the TrendChart IPM fiche tends to fall into one of the follow categories of measures:

- Intervention in the form of financial support State Aid to enterprises through programmes of grants, loans, etc. (e.g. grants for product development);
- Funding of innovation programmes or projects aimed at groups of innovation stakeholders with the objective of improving co-operation and collaboration and thereby the functioning of the innovation system (e.g. cluster);
- Measures taken to improve, disseminate or develop knowledge about specific aspects of national innovation systems (e.g. sectoral or regional strategies, foresight exercises, etc.) which is geared towards innovation activities
- Action to improve the functioning of institutions (legal acts, regulations) which affect innovation processes and performance (e.g. intellectual property rights, financial markets, creation of firms;
- Funding of innovation infrastructure and intermediaries such as innovation centres, incubators, etc..

This section of the report describes in more detail the current policy mix adopted in France in terms of the political priorities and human and financial resources allocated to each of these broad types of measures. Further details on the specific innovation policy measures can be found in annex 2 and via the TrendChart website.

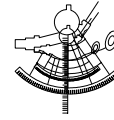
Besides the latest developments in policy measures, the main changes in 2004-2005 in French innovation policy concern the institutional framework. The main developments are:

- The creation of the National Agency for Research⁷³: The Agency's exact status and working methods are still unclear as the various statutes setting out its role will form part of the forthcoming Research Bill. In the interim period a temporary structure has been established to distribute the Agency's 350 M€ 2005 budget (financed mainly from privatisation receipts). The Agency will open a "blank call" funding spontaneous projects from any basic research field. It will also provide funding on the basis of competitive proposals evaluated by peer review for priority topics. The ANR will have a particular focus on basic research and research carried out in collaboration with industry. For 2005 the ANR will take over the management and funding of a number of existing direct funding programmes previously run by the Research Ministry. These include France's RRIT, a range of directed programmes in basic science, and France's National Nanoscience and Nanotechnology Network.
- The creation of OSEO as a result of the merger of ANVAR and BDPME (Bank for Development of SMEs) with the Agency for SMEs. In January 2004 ANVAR already took over the management of the Fund for Enterprises Competitiveness and of the ATOUT programme (FR4). SOFARIS (FR9) now forms part of OSEO. Its focus was recently changed to new creations and transmissions, thus moving away from supporting development, which used to be the main activity covered by the SOFARIS scheme.
- The creation of the General Directorate for Enterprises in the Ministry in charge of Industry (see 1.1.2).

ANR, OSEO, and the future All (see 2.1.3.3) will constitute the 3 main pillars of the French research and innovation system.

⁷³ www.gip-anr.fr

European Trend Chart on Innovation



2.1.4.1 Policy measures encouraging innovation

Innovation policy in France is **organised through two main actions**: support to innovation and research in companies and support to partnerships between public research and companies.

With regard to the first action, it can be divided into:

- support to the creation of innovative firms, comprising instruments like incubators of innovating firms, linked to public research (FR12), seed-capital funds (FR13) and the national competition for the creation of new technology-based firms (FR11). All launched in 1999, these measures have led to the creation of 1007 innovative companies by 2003, according to the 2005 Finance Law⁷⁴
- fiscal and financial incentives, including OSEO-ANVAR's Support to Recruitment for Innovation (FR3) for SMEs

Support to partnership between public research and companies relies on the first place on the organisation of commercialisation (*valorisation*) in public research organisations. This can be done internally, especially through the creation of a SAIC (Industry and Trade Activity Services – FR51). This solution is most widespread amongst universities and EPSTs. Another way of “commercialisation” is also the creation of a subsidiary in charge of managing and negotiating contracts on intellectual property operations and other relevant matters. Both solutions can exist simultaneously in one establishment. A national network, C.U.R.I.E.⁷⁵, gathers the people in charge of these structures of commercialisation and allows them to exchange examples of good practices. There are also incentives try to improve public researchers' patenting performance, in particular two decrees dating from 2001 increasing the profit-sharing on inventions for researchers (in France the legal owner of an invention is the host institution). Finally, public authorities try to increase researchers' awareness of patenting and of intellectual property issues.

Another way of promoting partnerships between public research and companies is the development of interfaces. This primarily concerns Research and Technological Innovation Networks (RRITs, FR17),. 16 RRITs currently exist, focusing on topics like telecommunications, human genetics, etc. They gather research teams from public research organisations, SMEs and industrial groups on joint projects. Funding is provided by the Ministry of Research and by relevant sectoral ministries (Industry, Transport, etc.). The National Agency for Research will in future take care of RRITs but its role is currently not defined. Other structures for technological research in partnership are the 20 National Centres for Technological Research (CNRT, FR29) and Technological research teams (ERT), the latest of which was created in 1999. Both are intended to increase the interaction between public and private research teams.

⁷⁴ “Etat de la recherche et du développement technologique”, annex to the 2005 Finance Law.

⁷⁵ www.curie.asso.fr

European Trend Chart on Innovation

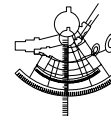
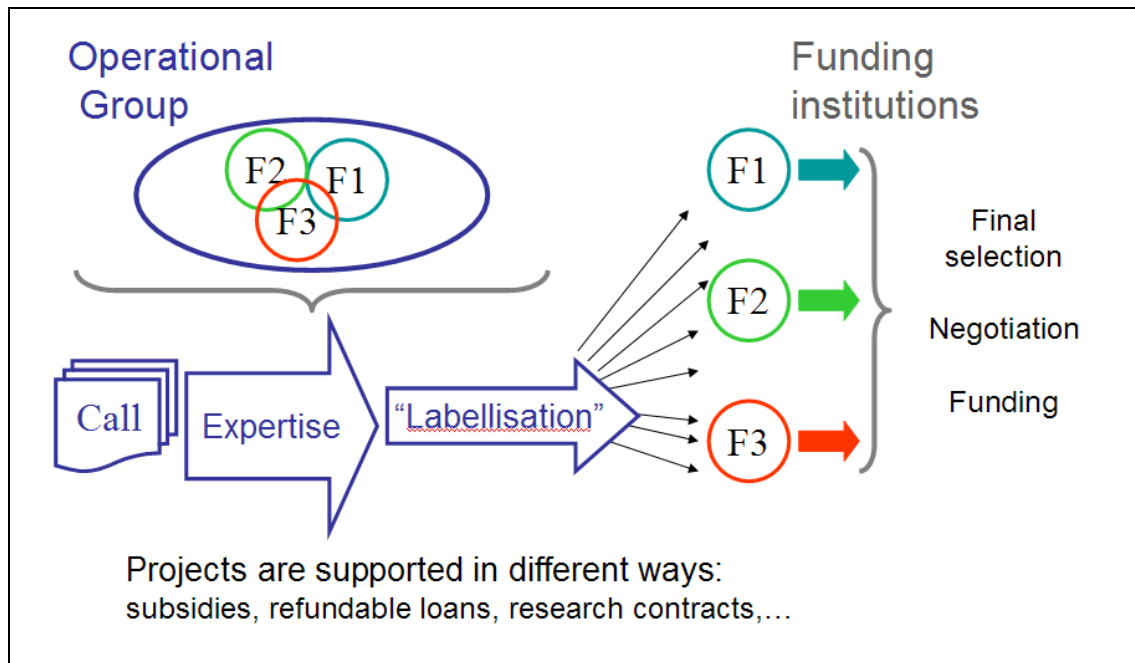


Figure 3: Way of functioning of RRITs



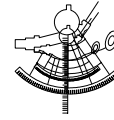
Other interface structures regard SMEs: for 20 years, national and local authorities have developed a policy supporting innovation and technological development in SMEs, implemented through the development of technological supportive structures to firms. These Regional Centres for Innovation and Technological Transfer (CRITTs) link public research and enterprises' needs. CRITTs were first created in the early 1980's. At present, there are about 200 such centres. Technology Platforms (FR33), a measure created in 2000, have been added to CRITTs and are linked to education institutions. Finally, Technological Development Networks (RTDs), created in 1990, have a broader focus, establishing an informal network in each Region consisting of all public and quasi-public actors involved in technology transfer and industrial development (DRRT, DRIRE, ANVAR, universities, public research institutions, etc.).

The last aspect of the policy aiming to support partnerships between public research and firms consists of measures promoting training by research in firms: CIFRE (Convention to support the recruitment of PhD candidates on an applied research project within an enterprise – FR7) and CORTECHS (Support for the recruitment of technicians on innovative projects – FR6).

With regards to innovation policy measures, the main recent changes are:

- Improvement and creation of fiscal and financial incentives for companies: improvement of Corporate tax credit for research expenses (Crédit d'Impôt Recherche –FR5) and Mutual Funds for Innovation (FR10), creation of the status of Young Innovative Company (FR58) and of the Single Person Risk Investment Company (FR59). Together, the different fiscal measures will amount to approximately €300 million (it also includes elements of the cost to Government of a package of tax breaks to be introduced for companies carrying out R&D activity in designated "Competitiveness Clusters", to be established later this year – see 2.1.4.2.)
- Actions for increasing awareness of entrepreneurship: creation of Houses of Entrepreneurship (FR60) for example
- In 2004, the public authorities assessed the relevance of the CIFRE facility and, on this basis, decided, to develop the CIFRE procedure in order to reach 1 500 CIFRE per year in 2010. The objective for 2004 was consequently set at 1 160 conventions, with a budget of €35,99 million. Promoting the the procedure amongst students and companies (especially SMEs) will be the main instrument for reaching the 2010 objective

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All these developments and new initiatives reflect the priorities linked to to the implementation of the 2003 Innovation Plan.

Another new measure established by a decree in 2004 regards easy access for innovative SMEs to public defence procurements (FR61). Provided they can prove they are at the origin of an innovative technology, SMEs can directly conclude an R&D contract with the Ministry of Defence without having to face competition with large companies as the normal procedures would request.

Updates of the other measures presented in table 6 below mainly relate to a review of the budget (National competition for the creation of new technology-based firms, ARI, RTD, etc.) or to an increase in the number of structures (PFT).

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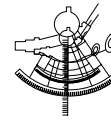
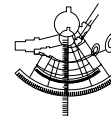


Table 6: New and modified Innovation Policy Measures over last 12 months

IPM N°	Title of measure	Action plan objective(s) addressed	Degree of novelty (modified/new) since Sept. 2004
FR 61	Easy access for innovative SMEs to public defence procurements		Modified
FR 60	Entrepreneurship Houses (Maisons de l'Entrepreneuriat)		Modified
FR 59	Single Person Risk Investment Company (Société Unipersonnelle d'investissement à risque)		Modified
FR 58	Support to projects by Young Innovative Companies (Aide aux Projets des Jeunes Entreprises Innovantes)		Modified
FR 51	Industry and trade activity services (Services d' Activités Industrielles et Commerciales, SAIC)	II.4. Legal and Regulatory Environment	Modified
		III.4. Co-operation Research/Universities/Companies	
		III.5. Absorption of Technologies by SMEs	
FR 33	Technology Platforms (PFT)	I.6 Promotion of clustering and co-operation for innovation	Modified
		III.4. Co-operation Research/Universities/Companies	
		III.5. Absorption of Technologies by SMEs	
FR 29	National Centres for Technological Research (Centres Nationaux de Recherche Technologique, CNRT)	I.6 Promotion of clustering and co-operation for innovation	Modified
		III.4. Co-operation Research/Universities/Companies	
FR 22	Technological Development Network (Réseau de Développement Technologique, RDT)		Modified
FR 19	Educnet	I.1. Education & Training	Modified
FR 15	Fund for the Promotion of Venture Capital (Fonds de Promotion pour le Capital Risque, FPCR)	II.5. Financing	Modified
FR 13	Seed-capital funds (Fonds de Capital d'Amorçage)	II.5. Financing	Modified
		III.3. Start-up of technology-based companies	
FR 12	Creation of regional incubators structures	I.6 Promotion of clustering and co-operation for innovation	Modified
		II.5. Financing	
		III.3. Start-up of technology-based companies	
		III.4. Co-operation Research/Universities/Companies	
FR 11	National competition for creation of new technology-based firms	I.3. Raising Public Awareness	Modified
		III.3. Start-up of technology-based companies	
FR 10	Mutual Funds for Innovation (Fonds Communs de Placement dans l'Innovation, FCPI)		Modified
FR 9	SOFARIS (Société Française de garantie des financements des PME)	II.5. Financing	Modified
FR 7	Support to the recruitment of PhD candidates on an applied research project within an enterprise - CIFRE convention	I.1. Education & Training	Modified
		I.2. Mobility Students/Researcher/Teachers	
		III.2. Strengthening Company Research	

European Trend Chart on Innovation



FR 6	Support for the recruitment of technicians on innovative projects (CORTECHS)	I.1. Education & Training	Modified
		I.2. Mobility Students/Researcher/Teachers	
		III.2. Strengthening Company Research	
		III.4. Co-operation Research/Universities/Companies	
FR 5	Corporate Tax Credit for Research Expenses (CIR)		Modified
FR 4	Technology Diffusion within SMEs (Procédure ATOUT)	III.5. Absorption of Technologies by SMEs	Modified
FR 3	Support to Recruitment for Innovation (Aide au Recrutement pour l'Innovation, ARI)		Modified
FR 1	Support for Innovation (Aide à l'innovation)		Modified

2.1.4.2 Developments in regional innovation policies

The year 2004 was marked by several dialogues about reforming the research and innovation sector at national and regional levels. The increase in the use of regional innovation scoreboards can be considered as a sign of an emerging awareness of research and innovation activities in regions. The regions Nord-Pas de Calais, Aquitaine, Centre, Rhône-Alpes, Midi-Pyrénées and some others are involved in such monitoring procedures, which may later be used as basis for reform. In some regions, there are even initiatives to create regional innovation agencies. This emerging regional interest is also shown in the growth of funds dedicated to research and innovation in the last CPERs. Nevertheless, the main activity at the regional level in the last year remained the implementation of already adopted measures supporting innovation.

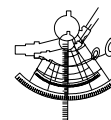
Much political attention is paid to attempts to respond to the technological needs of SMEs, although this is not a new policy orientation. Two bodies respond to SMEs' technological needs: the "Centres Régionaux d'innovation et de transfert de technologie" (CRITT) created in the early 1980s, and the "plateformes technologiques" (PFT) established since the end of 2000.

There are around 180 CRITT throughout the country, under different names ('agence', 'pôles', etc). There are two kinds of CRITT: 1) CRITT prestataire, 2) CRITT interface. The former respond to the technological needs of SMEs and are partly financed by a fee paid by the client enterprises, but can also be funded by the FRT in the context of 'Contrat de plan Etat – régions'. Some CRITT prestataires are labelled 'Centre de ressources technologiques' (CRT), a label intended to highlight the good quality of their services. Some of these CRT were subject to evaluations confirming their competence. CRITT interface, on the other hand, are light structures which address enterprises in need of advice and awareness (role of 'Conseillers en développement technologique' - CDT). These CRITT are financed in the context of the 'Contrat de Plan Etat – region' and are monitored by the regional 'Réseau de Développement Technologique' (RDT).

The objective of 'plateformes technologiques' (PFT) is to make it easier for SMEs to access new technologies. They form a network consisting primarily of education institutions as well as other engineering schools, universities and CRITT. Members of a PFT provide common access to equipment, training and any expertise of interest and are backed by research laboratories. In December 2003, there were 50 operational PFT (the expected number was 80).

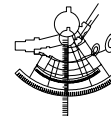
The most important new development in regional innovation policy in 2005 relates to **Competitiveness clusters** ("pôles de compétitivité"), a concept officially launched by the Prime Minister on 14 September 2004. Defined territorially by the concurrence of a strongly specialised industrial basis and research and education potential, the clusters are to foster the synergetic development of a sector or a technology through active partnerships between the clusters' members.

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This measure is widely inspired by an experiment launched in the mid 1970s in a few limited geographical areas, including Sophia-Antipolis or Grenoble. As a first stage, around 20 clusters are expected to be identified and named as such. Companies, research centres and initial and further education institutions belonging to such clusters will receive direct aids (subsidies for research projects, infrastructures etc), benefit from a series of tax incentives (fiscal rebates on corporate and social taxes) and have access to funding sources under privileged conditions (e.g. guarantees). Thirty million euro will be assigned to the poles in the 2005 budget. In total, 750 million euro will be earmarked for the measure over the next three years, half of it financed by the State budget with the remaining half financed by other public institutions (OSEO-ANVAR, Caisse des Dépôts et Consignations etc). At the time we are writing, 105 applications had been received after the launch of a call for proposals in autumn 2004, 26 of which were inter-regional. By mid 2005, a first list of competitiveness clusters will be published⁷⁶.

⁷⁶ www.competitivite.gouv.fr



2.2 Is policy effective in improving innovation performance?

2.2.1 Policy responses to identified challenges

According to the preliminary conclusions of the FutuRIS programme, French innovation policy making is characterised by a lack of strategic vision and the absence of structures and infrastructures where such a vision could be generated.

The present period is characterised by an intense reorganisation of public policy in two major fields with a direct impact on innovation: the devolution of competencies to local authorities and the reorganisation of public research. It is therefore too early to say whether the proposed responses will be adapted to new and existing challenges.

The present report shows that sweeping changes are currently taking place, sometime even deep cultural changes. This is a positive outcome as it shows a higher level of *awareness*, which is a prerequisite for being able to respond to challenges. In other words, there is an unparalleled opportunity to place the whole research and innovation system under scrutiny and to carry out a (much needed) overhaul.

As shown in Diagram 3, the EIS 2004 indicators show the following main challenges for France:

- Knowledge creation, innovation finance and markets: this is characterised by insufficient attention to the pre-development stage, few business angels, insufficient venture capital. French SMEs exhibit a low level of non-technical innovation, patenting is finally a further challenge for French innovation policy
- Human resources: France ranks low in the proportion of the working population with tertiary education and in lifelong learning and is not moving ahead

The Trend Chart Annual Synthesis Report 2004 highlights moreover that France should further improve its innovation performance because France's performance in terms of income with innovation performance is weaker than that of other technologically more advanced countries.

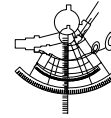
However, the EIS indicators do not take into account more structural challenges that France should address. In general terms, they are (often) linked to governance issues and concern the following points:

- Too many institutional actors present. Lack of transparency, of a clear identification of responsibilities, and consequently of legitimacy of the actors; hence a need for simplification
- Too many dispersed policy instruments with a risk of dilution of the impacts and significant running costs. A lack of monitoring and evaluation (see below) prevents any real knowledge as to whether the different measures contradict each other, overlap or create synergy effects. Consequently, there is here also a need for simplification in this area.
- Whereas programming is of high quality in France, the problem is the lack of follow-up with adequate indicators.

Many of the challenges in the first category are tackled by policy, especially the mutual funds for innovation and their improvement in the Innovation Plan framework, seed-capital funds, funds for the promotion of venture-capital, the status of single person risk investment company for supporting business-angels and of course the future Competitiveness clusters. However except for monitoring carried out by the Technology Division in the Ministry in charge of research, there is no evaluating the impacts of these measures and how they fulfilled their objectives. Finally, important questions such as the number of actors and instruments as well as budgetary imbalances are either not recognised or very difficult to answer. However the creation of ANR, OSEO and All is motivated by the objective of improving coordination, simplifying procedures and improving institutional organisation.

On the positive side, there are also responses to specific problems which appear particularly appropriate. One positive aspect of the current policy mix is the emphasis placed on the creation and

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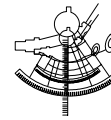


development of networks involving the actors of the innovation system (RRITs, RDTs, etc.). This is a welcome development considering that networking used to be a traditional weakness of the French innovation system. Another positive point is the great attention paid to SMEs, again a recent development which is particularly appropriate in the French policy context. Measures to improve entrepreneurship within society – and especially among students, doctoral or post-doctoral researchers (cf CIFRE; Houses of Entrepreneurship) also fall into this category.

Table 7: innovation challenges and policy responses

Identified challenge	Measures for meeting the challenge
1 – Institutional complexity	The creation of ANR, AII and OSEO may address this challenge however this is too early to say what organisational changes will actually happen
2 – Multiplication and overlap of policy instruments	see above
3 – Lack of follow-up of policy measures	The authors of this report doubt that the future Organic Law Relating to Public Accounts (LOLF) will address the lack of follow up as indicators developed in the law are mainly at a macro level
4 – Insufficient attention paid to the pre-development stage	Incubators, seed-capital funds, FCPI, FPCR, advises given by institutions like OSEO-ANVAR, the national competition for creation of new technology-based firms... are measure designed to address this challenge
5 – Few business angels	The need to supporting business-angels has been raised successively in the 1999 Innovation Act and in the 2003 Innovation plan, and this recently led to the creation of the status of Single Person Risk Investment Company
6 – Insufficient venture capital	See 5.& 6.
7 – Innovation performance	Efforts to ease the administrative complexity of the regulatory environment
8 – Low non-technical innovation of SMEs	Measures in favour of competitiveness and entrepreneurship can address this challenge.
9 – Tertiary education and in lifelong learning	The so-called “Bologna process” (harmonisation of education degrees) led to the reform of LMD in France, one of the objective being the impact on innovation. CIFRE are also one of the lighthouse measures of the French innovation policy but it is difficult to evaluate its impact as the programme has not been evaluated
10 – Patenting	A 2002 plan for intellectual property dealt with training, communication and a series of concrete actions applied on the grounds through the joint action of INPI and ANVAR, aiming to increase awareness of patenting issues. One year before these actions were launched, two decrees increased the researchers’ profit-share of their inventions.

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2.2.2 Progress towards policy objectives and targets

As hinted above, some remarkable changes have been introduced and targets achieved. The most spectacular results are changes in mentalities or attitudes. To the casual observer, there is a quiet consensus to say that the quantitative (Barcelona) targets are not really within (easy) reach.

Since 2000, innovation policy-making has benefited from the thrust of the 1999 Innovation Act. By contributing to make the separation between academic and business worlds more permeable, the Act has indeed generated enthusiasm and a wide cultural change. For example, in biology, where mentalities used to be very narrow-minded, it was a natural mission for a researcher to do research in a public laboratory. The background for this was one of frank hostility for the private sector. Following the introduction of the Act, the number of start-ups in the biotechnology sector soared, reaching 625 enterprises employing 125,000 people in 2001.⁷⁷ Another indicator of the successful transformation of attitudes are the figures registered by the Concours (FR 11): 1,500 candidates per year, i.e. about 9000 in six years of which around 600 successfully established their enterprises.

Other important objective that has been met in terms of (cultural) attitudes with respect to innovation is the slow emergence of a *project management culture* and of an evaluation culture. Other institutional targets that were met include the introduction of infrastructural changes with the establishment of an administrative environment that is more 'innovation-friendly' (e.g. the JEI and SUIR status, the creation of 'Fondations').

Finally, at a more formal level, satisfaction can be derived from the fact that almost all the measures provided for by the Innovation Plan of April 2003 have been implemented.

Quantitative targets are less likely to be achieved. France has officially endorsed the Lisbon objective to spend three percent of its GDP on research by 2010, two thirds of which should be funded by enterprises and one third by the State. Nowadays, public research represents 0.95 percent of GDP and business research only 1.25 percent. One important objective is therefore to increase private research/innovation within enterprises. The distribution between public and private R&D according to this objective appears to be reachable. However, reaching an overall level of R&D expenditure equalling 3% of GDP seems less likely. The Government's intermediate aim is to raise R&D expenditure to 2.6% of GDP by 2006.

One of the conclusions of the FutuRIS exercise is to insist that a country of medium size like France faces specific challenges. It cannot do everything and be good at everything: it has to make choices due to severe budgetary constraints. At present there seems to be an imbalance between the objectives and the means. In order to sustain the current objectives, i.e. to maintain public R&D spending⁷⁸ while favouring industrial research, R&D expenditure would have to be raised from the current 0.95 percent of GDP to 1.3 percent.

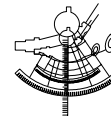
Finally, the last 12 months have seen a reorganisation of the institutional framework that will not be completed until the end of 2005. The period under review has therefore been very dynamic (ANR, OSEO, future All and Competitiveness clusters, measures linked to the 2003 Innovation Plan), but it is too early to judge how far these initiatives will respond to identified challenges.

*	No clear targets
**	Targets clear but too general
***	General targets plus quantified sub-targets (qualitative targets are on the way to be met, but quantitative ones are less likely to be achieved)

⁷⁷ See a report available at <http://cisad.adc.education.fr/reperes/public/publicat/nr/nr0301/default.htm>

⁷⁸ Comprising sectoral objectives: space, aeronautics, energy (for example: the ITER project on fusion).

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2.2.3 Appraisal of innovation measures

Three evaluations were known at the time of writing this report, all dealing with single measures, none with direct implication for the broader innovation policy mix. Below is a brief account of the main respective findings:

- Evaluation de la Procédure d'aide au projet d'innovation de l'ANVAR 1993 – 1999 (Technopolis, November 2001)⁷⁹ (FR 1)
 - One criticism is that the Agency is better at accompanying and financing innovative projects (fostering endogenous development) than at networking. This result of the evaluation was just brought forward in June 2004 when regional delegations received instructions about how to improve their activities in this respect.
 - Need to reinforce targeting of companies.
 - Need to reinforce impact monitoring.
 - Develop attention to the capacity of companies to integrate commercial and marketing aspects of an innovative project.

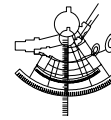
- Evaluation à mi-parcours des incubateurs d'entreprises innovantes liés à la recherche publique (Ernst & Young, September 2003) (FR 12)
 - The evaluation was carried out for each incubator separately and for the programme as a whole
 - Identification of good practices:
 - * independent selection from local funding sources
 - * the success of the incubated project depends for a large part on the quality of the project team. A good practice is that of selecting potential coaches and team members and integrating the project in the incubator only when the team is consolidated
 - Specific recommendations made with respect to:
 - * the identification process: effective when carried out together with commercialisation units already in place;
 - * the selection process needs preliminary expertise and more formalised procedures;
 - * For the accompanying measures, it is more useful to undertake studies on the economic feasibility of the project than to make simple market studies. There is a need to have a sound business plan. Furthermore: specific accompanying measures with respect to intellectual property (it is better to leave intellectual property rights to the original laboratory and negotiate a license), capital raising (which should be limited to proximity funding), collaboration with external partners (coaching is a fundamental contribution which benefits from a structured approach);
 - * link between the incubators and the Ministry: a common software would be useful, harmonise computation procedures; and
 - * funding projects: examples of good practices are: a system of variable reimbursement of external charges, reimbursable loan in case of success, 'pre-incubation funding' in the laboratories, monthly fixed amount to reimburse personal expenses.

- Les partenariats public – privé pour la recherche et l'innovation : l'expérience française (OECD, 2004)⁸⁰ (FR 17)
 - Seven RRIT were evaluated individually
 - * The contribution of RRIT to the establishment of public–private partnerships is positive. They represent a good way to overcome the dilemma between horizontal and sectoral objectives.
 - * RRITs also reconcile top down and bottom up approaches
 - * They have minimal expenses
 - * RRITs should be managed as a portfolio: a group of RRIT should follow different yet coherent objectives. Only those with a critical mass should be supported. Systematic evaluation is necessary. They should be financed by the same authority and have the same legal status.

⁷⁹ Available at <http://www.anvar.fr/download/actulettN9arti3-RapportFinalTechnopolisANVAR.pdf>

⁸⁰ Available at www.recherche.gouv.fr/rapport/pppfrance.pdf

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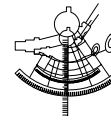


* RRITs should seek more actively internationalisation.

Some RRITs have also been evaluated individually⁸¹, but not all these evaluations have yet been made public.

Other evaluations were carried out (evaluation of Cortechs at regional level - Aquitaine, Pays de Loire - and at national level in 97/98, also evaluation of ADEME's activities) but the reports were not made available. Some measures are conspicuous for not being evaluated despite their budgetary importance (CIFRE).

⁸¹ E.g. RNRT : report available at www.telecom.gouv.fr/mrt/reseau/doc/rapport-evaluation-RNRT.htm



3 Identification of Good Practice

3.1 Good practice in innovation governance: the decentralisation process of ANVAR

The success of the decentralisation process of ANVAR's organisation was presented, among others, in a 2002 parliamentary report by M. Destot⁸². The agency has been a regionalised organisation since 1979, with headquarters in Paris and 25 regional delegations (RD).

The decentralisation process of ANVAR has been chosen as an example of good practice in innovation governance because regions become more important actors in innovation policy in several European countries and the issue of dealing with the upcoming decentralisation deserves attention in order to settle questions such as "How much coordination should be left to the central administration?", "What can be done to avoid confusion on the part of companies interested in support schemes?"

Created in 1967, ANVAR was at first under the supervision of the research organisation CNRS and was only in charge of commercialising public research. All its activities were centralised in Paris: mostly a team composed of engineers, legal experts, and industrial specialists. The action of ANVAR was therefore top-down. In 1979 there was an increased political will to involve SMEs in the development of innovation more closely; ANVAR's aim became the integration of SMEs in innovation and technical progress. This meant a change in the logic of ANVAR's intervention following a bottom-up model: to support projects coming up from SMEs. To ensure this, the support scheme to innovation projects was set up on 13 July 1979 and regional delegations (RD) were established ANVAR close to the industrial fabric. This meant first that regional delegates had the responsibility to take the decision on funding a SME, and secondly that ANVAR's size increased from 60 to 200 employees. Today 500 people are working for ANVAR, 65% of which in RDs, the rest at the headquarters. From 1996 onwards all applications are entirely managed by ANVAR's regional delegations.

ANVAR therefore provides a model where the regional delegation is more or less exclusively the interface with companies, whereas the central level provides all backbone services (management, internal training, reporting, database, management of financial flows, advanced technical expertise, European affairs...). Since 1993, objectives for each RD are defined on an annual basis by the General Direction in collaboration with the RD concerned, the performance of which is evaluated the year after.

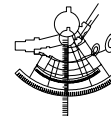
It should be highlighted that the regional delegations have often provided SME with more than just funding, but have also given general support for the success of the innovation project (which is of course in ANVAR's interest as an Agency's grant becomes a reimbursable loan in case of success of the project). RDs can be considered as a nodal point for all organisations involved in innovation and built up moreover a network of partners in innovation: technical centres, public laboratories, banks, investors, consultants...

The decentralisation process therefore makes the Agency a privileged interlocutor both nationally and regionally. . Indeed, ANVAR's relations with regional partners have increased considerably over the time, especially with Regional Councils, following the general French decentralisation process where Regional Councils gained competences in economic development (especially since 2003-2004). The first conventions with Regional Councils were agreed in 1984-1985, many of which have been amplified since then: diverse conventions are signed with all Regions nowadays.

Structuring of partnerships with Regional Councils and regional/local partners will increase in the coming years with the creation of OSEO. Indeed OSEO will provide its partners with territorial

⁸² Destot M., 2002, Rapport d'information sur l'ANVAR, Assemblée Nationale, available at: www.assembleenationale.fr/rap-info/i3621.asp

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diagnostics and technological watch activities. The new agency will moreover take part in building up future excellence clusters – not only those labelled “competitiveness clusters”.

In conclusion, ANVAR has a clear-cut distribution of tasks that leads to mutual support of the decentralised and the central bodies and allows a logic of intervention that includes, but goes beyond financial support.

3.2 Good practice in policy implementation: the Young Innovative Company status

A recent initiative is regarded as a very positive measure for research and innovation and has therefore been chosen as an example of good practice in French innovation policy implementation: the Young Innovative Company status (JEI), provided for in the 2004 Finance Law⁸³.

The objective of this status is to help young innovative companies overcome their first years of existence by granting them tax credits to offset R&D investment.

3.2.1 Background and rationale

The measure was proposed in a draft Innovation Plan at the end of 2002 and then submitted to a national consultation where 85% of respondents agreed with the proposal. It was finally adopted in the May 2003 Innovation Plan and entered into force with the 2004 Finance Law. The measure is expected to end in 2013.

The facility was designed in close cooperation with Brussels to ensure its compatibility with EU support to R&D.

A document of the Ministry in charge of Industry presents the measure in detail⁸⁴ and explains its usefulness

- with regard to the national and European objective of increasing R&D expenditure to 3% of GDP by 2010
- because companies in France are investing less in R&D than in other countries (Japan, Germany, United States and others)
- because small and young innovative companies are weaker in their first years of existence

The adoption of the JEI status answers two important challenges: a lack of funding during the first years of a company's development and a weak investment rate in R&D by the private sector in general, and by SMEs in particular.

3.2.2 Conditions to be granted the JEI status

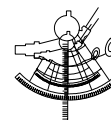
There are 5 conditions a company must meet to be eligible for public support to JEIs:

- They must be an SME with less than 250 employees and less than €40 million turnover or a balance sheet of less than €27 million
- They must be younger than 8 years
- They must have R&D expenses amounting to at least 15% of total costs (NB: not all R&D expenditures are eligible, for example technological watch expenditures are not)
- They must be independent, i.e. at least half of capital must be held by physical persons, other SMEs, research or higher education institutions or their subsidiaries, capital risk companies, mutual funds for innovation, business angels, etc.
- They must be genuinely new (i.e. not result from a merger, a restructuring exercise, etc)

⁸³ In the articles 13 and 131; of the complete text of the Finance Law www.legifrance.gouv.fr/WAspad/UnTexteDeJorf?numjo=ECOX0300134L. The decree 2004-581 of 21 June 2004 (www.admi.net/jo/20040622/SANS0420260D.html) enforced the status.

⁸⁴ Available at: www.industrie.gouv.fr/pdf/innov.pdf

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3.2.3 Existing support for eligible companies

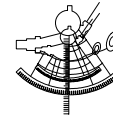
Two types of tax rebates have been set up:

- Tax relieves: no tax on revenues for the first three profitable years, then tax exemption for 50% for two years. Subject to the decision of the competent local authorities, the company may be exempt from two types of local taxes; no tax on capital gains on JEI shares or stock options that have been held for a minimum of 3 years
- Tax exemption on social security payments associated with the employment of highly qualified personnel (researchers, technicians, lawyers in charge of industrial property; presidents, managers if principally involved in R&D activities, etc.)

The Ministry in charge of Industry considered the facility as a success in its first year of existence (2004) as 900 companies with a total of 4 900 employees were granted JEI status. As stated in the 12th Innovation Scoreboard⁸⁵, the reduction of fiscal incomes resulting from the support to JEIs is estimated at approximately €25 million per year.

⁸⁵ Tableau de bord de l'Innovation, 12e edition, Avril 2005.

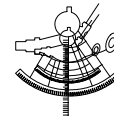
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Annex 1: overview of innovation policy documents

Main policy documents concerning innovation policy adopted/published since 2000

Title of document	Date	Organisation responsible	Legal status	Comments
Innovation and Research Act	12 July 1999	Ministry in charge of Research	Law	
Call for proposal for the creation of incubators and seed capital funds	March 1999	Ministry in charge of research	Government decision	
Innovation Plan (Plan en faveur de l'Innovation)	April 2003	Ministry in charge research and Ministry in charge of industry	Government decision	Presented as a Strategy paper in December 2002, Discussed winter 2002 – 03.
Finance Laws	2000 – 2005	Parliament	Laws	Provide budget for research and innovation (BCRD)
Finance Laws	2000 – 2005	Parliament	Laws	Provide budget for research and innovation (BCRD)



Annex 2: overview of innovation policy measures

As part of the European TrendChart on Innovation, detailed information on policy measures in each country is collected in an online database which can be consulted on the TrendChart website (www.trendchart.org). The aim of this section is to provide a succinct overview of the detailed information that is available online for each individual measure.

In each of the following sections, the measures contributing to a specific objective of the innovation policy framework used by the TrendChart are described in more detail. This innovation policy framework has been recently updated to reflect evolutions in our understanding of the scope and nature of innovation policy measures.

The table below presents, in chronological order (newest measures at top), the measures currently catalogued in the TrendChart Innovation Policy Measure database.

Three aspects are particularly highlighted for each category of measures discussed in the following sections:

- The mix of types of instruments (State aid, support for intermediaries/knowledge organisations, regulatory/legislative, information/strategy processes, etc.) addressing each category of objective of the innovation policy framework;
- Changes in time in the level of support (funding, political priority)
- The development over time (notably since 2000) of the number policy measures and notably recent adaptations to the mix (termination, modification or creation of specific measures).

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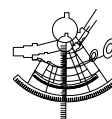
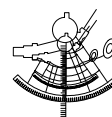


Table A2.1: List of Innovation Policy Measure Fiche in the TrendChart database as of 30 March 2005

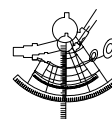
IPM Fiche Number	Title of measure	Policy Monitoring framework (2005-2007) objective(s)	IAP96 Action line	Start Date	End date	Status during reported period	Evaluated
FR 63	Competitiveness clusters	III.1. Facilitate access of enterprises to skilled personnel III.2. Facilitate the acquisition and transfer of knowledge and technologies to enterprises, encouraging in particular cross-border initiatives III.4. Increase the availability of innovative infrastructures to facilitate knowledge exchange and product/service development by enterprises III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange		2005	2009	New	No
FR 61	Facilitated access of innovative SMEs to public procurements in the field of defence	II.1. Enhancing the role of public procurement and standardisation as drivers of new innovative products services by enterprises IV.3. Favouring the entry of innovative enterprises and business models to sectoral, regional or national markets		2004	No End Date Planned	Modified	No
FR 60	Entrepreneurship Houses (Maisons de l'Entrepreneuriat)	III.5. Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises		2004	2007	Modified	No
FR 59	Unipersonal Risk Investment Company (Société Unipersonnelle d'investissement à risque)	IV.4. Increase the availability of private sector innovation financing to enterprises IV.5. Optimising the legal/regulatory framework for the development of private innovation financing		2004	No End Date Planned	Modified	Yes
FR 58	Support to projects by Young Innovative Companies (Aide aux Projets des Jeunes Entreprises Innovantes)	IV.1. Increase the number of new innovation intensive enterprises created and their survival		2004	2012	Modified	Yes
FR 51	SAIC - Services d'Activités Industrielles et Commerciales - Industry and trade activity services	III.3. Increase the availability, range and quality of specialised services to enterprises in order to increase the effectiveness of their in-house innovation activities	II.4. III.4. III.5.	2002	N/A	Modified	No

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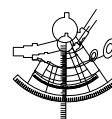
FR 35	Co-investment funds for young enterprises	IV.1. Increase the number of new innovation intensive enterprises created and their survival IV.4. Increase the availability of private sector innovation financing to enterprises	II.5. III.2.	2002	2010	Ongoing	No
FR 33	Technology Platforms (PFT)	III.2. Facilitate the acquisition and transfer of knowledge ad technologies to enterprises, encouraging in particular cross-border initiatives III.3. Increase the availability, range and quality of specialised services to enterprises in order to increase the effectiveness of their in-house innovation activities III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange V.1. <u>Upgrading innovation related skills and diffusing new technologies in enterprises</u>	I.6 III.4. III.5.	2000	2006	Modified	No
FR 31	Youth and Innovation	III.5. Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange V.1. <u>Upgrading innovation related skills and diffusing new technologies in enterprises</u>	I.1. I.2. III.4.	1996	NA	Ongoing	No
FR 29	National Centres for Technological Research (Centres Nationaux de Recherche Technologique - CNRT)	III.2. Facilitate the acquisition and transfer of knowledge ad technologies to enterprises, encouraging in particular cross-border initiatives III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange	I.6 III.4.	2000	N/A	Modified	Yes
FR 22	Technological Development Network (Réseau de Développement Technologique et RDT)	II.4. Increase rates of expenditure on research and technological innovation in enterprises		Before 1995	No End Date Planned	Modified	No
FR 19	Educnet	III.5. Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises V.1. <u>Upgrading innovation related skills and diffusing new technologies in enterprises</u>	I.1.	1998	N/A	Modified	Yes
FR 17	Support for the creation of thematic research networks (Réseaux de Recherche et d Innovation Technologiques - RRRIT)	II.4. Increase rates of expenditure on research and technological innovation in enterprises III.2. Facilitate the acquisition and transfer of knowledge ad technologies to enterprises, encouraging in particular cross-border initiatives III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange	III.4.	1998	N/A	Ongoing	No

European Trend Chart on Innovation



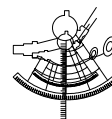
FR 15	Fund for the Promotion of Venture Capital (Fonds de Promotion pour le Capital Risque - FPCR)	IV.4. Increase the availability of private sector innovation financing to enterprises IV.5. Optimising the legal/regulatory framework for the development of private innovation financing	II.5.	2000	2012	Modified	No
FR 14	Support for the recruitment of post-doctorate in SMEs	III.1. Facilitate access of enterprises to skilled personnel	I.1. I.2. III.2. III.5.	1998	N/A	Ongoing	No
FR 13	Seed-capital funds (Fonds de Capital d'Amorçage)	IV.4. Increase the availability of private sector innovation financing to enterprises	II.5. III.3.	1999	N/A	Modified	No
FR 12	Creation of regional incubators structures	III.3. Increase the availability, range and quality of specialised services to enterprises in order to increase the effectiveness of their in-house innovation activities III.6. Facilitate the development of collaboration between enterprises and other actors with a view to joint innovation activities and knowledge exchange IV.1. Increase the number of new innovation intensive enterprises created and their survival IV.2. Provide adequate infrastructure to new technology based firms to facilitate their survival and growth	I.6 II.5. III.3. III.4.	1999	N/A	Modified	Yes
FR 11	National competition for creation of new technology-based firms	IV.1. Increase the number of new innovation intensive enterprises created and their survival	I.3. III.3.	1999	N/A	Modified	No
FR 10	Mutual Funds for Innovation (Fonds Communs de Placement dans l'Innovation - FCPI)	IV.4. Increase the availability of private sector innovation financing to enterprises		1997	none	Modified	No
FR 9	SOFARIS (Société Française de garantie des financements des PME)	II.4. Increase rates of expenditure on research and technological innovation in enterprises IV.4. Increase the availability of private sector innovation financing to enterprises	II.5.	1982	None	Modified	No

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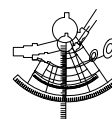
FR 7	Support to the recruitment of PhD candidates on an applied research project within an enterprise - CIFRE convention	III.1. Facilitate access of enterprises to skilled personnel III.5. Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises	I.1. I.2. III.2.	1981	none	Modified	No
FR 6	Support for the recruitment of technicians on innovative projects (CORTECHS)	III.1. Facilitate access of enterprises to skilled personnel III.5. Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises	I.1. I.2. III.2. III.4.	1988	none	Modified	No
FR 5	Corporate Tax Credit for Research Expenses - CIR	II.4. Increase rates of expenditure on research and technological innovation in enterprises III.1. Facilitate access of enterprises to skilled personnel III.2. Facilitate the acquisition and transfer of knowledge ad technologies to enterprises, encouraging in particular cross-border initiatives IV.1. Increase the number of new innovation intensive enterprises created and their survival V.3. Favouring the protection and optimising the exploitation of intellectual property as a driver for innovation		1983	No End Date Planned	Modified	No
FR 4	Technology Diffusion within SMEs (Procédure ATOUT)	II.5. Encourage the uptake of strategic technologies, notably ICT III.3. Increase the availability, range and quality of specialised services to enterprises in order to increase the effectiveness of their in-house innovation activities V.1. Upgrading innovation related skills and diffusing new technologies in enterprises	III.5.	1984	N/A	Modified	Yes
FR 3	Support to Recruitment for Innovation (Aide au Recrutement pour l'Innovation - ARI)	III.1. Facilitate access of enterprises to skilled personnel		1988	none	Modified	Yes
FR 1	Support for Innovation (Aide à l'innovation)	II.4. Increase rates of expenditure on research and technological innovation in enterprises III.2. Facilitate the acquisition and transfer of knowledge ad technologies to enterprises, encouraging in particular cross-border initiatives		1979	None	Modified	Yes

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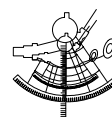
IPM Fiche Number	Title of measure	Overview
FR 63	Competitiveness clusters	<p>Inspired by numerous foreign examples, the French authorities launched a call for projects in December 2004 aiming at funding competitiveness clusters ("pôles de compétitivité") with an international visibility. Clusters gather companies, training centres and public and private research organisations around innovative joint projects. Clusters are specialised in scientific and technological fields.</p> <p>In reply to their call for projects, the authorities in the regions received 105 applications, an unexpectedly high number that forced the government to double the available funding from EUR 750 million to EUR 1,5 billions for 2006-2008. A list of 67 cluster projects that will receive financial support from the Government was published on 12 July 2005 (originally, state authorities were supposed to select only 15 competitiveness clusters).</p> <p>The priorities and status of each cluster will be defined in individual contracts between the different parties involved (State, local powers, universities, research laboratories, training centres and enterprises).</p> <p>The 67 selected projects are divided into 4 types:</p> <ul style="list-style-type: none"> - 6 international clusters - 9 clusters with an international vocation - 15 interregional clusters - 37 regional clusters <p>They cover areas like aeronautics, ICT, life sciences, but also more traditional sectors such as wood, meat or construction.</p> <p>Each competitiveness cluster will select projects that should be funded and give it a label. Then project partners will seek for public funding: OSEO-ANVAR (French Agency for Innovation), OSEO-BDPME, the "Caisse des Dépôts", the Agency for Industrial Innovation and the National Agency for Research will in priority fund RTD projects in the framework of competitiveness clusters. Companies are also eligible thanks to a competitiveness cluster label for tax exemptions and for reductions of social charges.</p>
FR 61	Facilitated access of innovative SMEs to public procurements in the field of defence	<p>The measure makes it easier for innovative companies and SMEs in particular to participate to public procurements in the field of defence. Provided they can prove they are at the origin of an innovative technology, SMEs can directly conclude an R&D contract with the Ministry of Defence without having to face competition with large companies as the normal procedures would request.</p>
FR 60	Entrepreneurship Houses (Maisons de l'Entrepreneuriat)	<p>Entrepreneurship Houses (Maisons de l'Entrepreneuriat) are established within Universities and Higher Education Institutions (HEI). Their mission is to open up universities to the business world, strengthen the links between universities and enterprises, raise students' awareness to entrepreneurship, and identify and exchange good practices promoting entrepreneurship culture within universities. The Entrepreneurship Houses must result from a cooperative initiative taken by several HEI together.</p>
FR 59	Unipersonal Risk Investment Company (Société Unipersonnelle d'investissement à risque)	<p>The task of the Unipersonal Risk Investment Company (Société Unipersonnelle d'investissement à risque - SUIR) is to facilitate investments by business angels. The measure aims at mobilising individual investors by granting them corporate tax exemption and income tax exemption for a 10 year period.</p>
FR 58	Support to projects by Young Innovative Companies (Aide aux Projets des Jeunes Entreprises Innovantes)	<p>The objective of the 'Young Innovative Company' (Jeune Entreprise Innovante) is to help young innovative firms overcome the difficult first years of existence by extending them tax credits in favour of R&D investment. The status is granted to independent SMEs less than 8 years old, with R&D expenses amounting to at least 15% of their total expenditures. Companies that enjoy the JEI status become eligible for a series of tax rebates including exemptions on corporate earnings taxes, local taxes and social charges associated with the employment of highly qualified personnel.</p>
FR 51	SAIC - Services d'Activités Industrielles et Commerciales - Industry and trade activity services	<p>the main goal is to organise industry and trade activities of HEI in order to facilitate research valorisation and transfer.</p>

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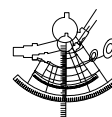
FR 35	Co-investment funds for young enterprises	This fund is aimed at young French companies with less than seven years of existence. The technological sectors aimed at vary: information and communication technologies, electronics, biotechnologies and nanotechnologies. The main objective is to take minority participations in the young technological enterprises upon demand and together with the investment funds established in European Union countries. The portfolio will be of 50 to 60 participations in young technological enterprises. This fund is a market tool. It will intervene in the same conditions as private investors and will strive to protect the interests of the subscriptions.
FR 33	Technology Platforms (PFT)	The objective of Technological Platforms is to support and institutionalise the 3rd mission of public education and training institutions, i.e. the promotion of innovation and technology transfer. The measure is geared both to education institutions and SMEs and aims at making the two parties mutually aware and open to cooperation. Organised around SMEs' needs, PFT are expected to reinforce the supply by educational institutions of technological services to SMEs. At the same time, PFT are to strengthen training through provision of technological services. In this way, PFT complement CNRT (FR 29) and ERT (Equipes de Recherche Technologique) which target more explicitly research activities carried out by public research organisations and large companies' research labs. PFT have 3 main guiding lines: - they make means and competence of HEI, training institutions but also secondary technical education institutions (professional high schools) and if long learning organisms available to SMEs - they enable to share equipment useful to HEI, training institutions and the supply of scientific and technological services: they create a common space for training and technological services - development of a network gathering various technology transfer structures At the end of 2004, there were more than 70 Technological platforms. The juridical status of a PFT is defined on a case by case basis; it often takes the form of a GIP (Groupement d'intérêt public).
FR 31	Youth and Innovation	The measure aims to support youngsters (15 - 25 years) who want to develop an innovative project. The scheme contributes to a better professional integration for the youngsters and promotes links between education and enterprises
FR 29	National Centres for Technological Research (Centres Nationaux de Recherche Technologique - CNRT)	The National Centres for Technological Research are instruments to foster technology transfers and develop public private partnerships. The objective is to bring together public research laboratories and private research centres (generally of large companies but also sometimes of high tech SMEs) to develop collaborative technological research activities. The Centres are geographically identified and focus on one specific field of competence. They are to contribute set-up a regional innovation strategy focusing on selected poles of competence. Their vocation is to become established poles of competence and excellence at national level. They should be able to link with RRIT (FR 17) which, as opposed to CNRT, are not defined by a precise location, and they are expected to lead to increased participation to European projects and programmes. The CNRT label is granted by the Ministry in charge of Research to a group of public and private partners on the basis of territorial and thematic criteria reflecting a geographical concentration of competence. Depending on the case, a CNRT may take different juridical forms (Groupement d'intérêt scientifique, GIP ...). The organisation of the Centre and the terms of collaboration are under the responsibility of each Centre members. In most of the cases, the Centres receive financial support through the "Contrat Plan Etat Region" concluded for 6 years between the Government and regional authorities. The Government also supports collaboration within the Centres through access to preferential juridical conditions. Sectors most concerned are those defined in a foresight exercise as Technologies Clefs (ICT, Life sciences, materials, new energies and environment). Some examples of CNRT are Belfort (combustible batteries), Evry (human genome), Grenoble (micro/nano-technologies), etc. Initially 17 National Centres were planned but 20 have been constituted since 2000. For the moment no new CNRT are expected to be labelled as such. In 2004, the measure was suspended until further notice while only the already existing CNRT continue their activities.

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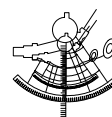
FR 22	Technological Development Network (Réseau de Développement Technologique - RDT)	<p>In each French region, a Technological Development Network (RTD) gathers regional institutional actors in the field of innovation (ANVAR, DRIRE, DRRRT, Chambers of commerce, prefects) in an informal network. The RTD co-ordinates actions to promote innovation within SMEs. Members of the network (prospectors) have planned visits to regional SMEs in order to detect innovation needs; they are in charge of presenting the large number of available public measures in favour of innovation. A specific effort is being made for SMEs which have never been in contact with public authorities or research organisations. Prospectors have the ability to propose the Network Technology Subsidy, which allows SMEs to finance the first step of an innovation project (covering up to 75% of the project cost but not exceeding 5000 Euro). RDT pursue a series of targeted missions:</p> <ul style="list-style-type: none"> - Coordination - Knowledge of enterprise and of their technological needs - Financial support adapted to very small enterprises with the PTR (flexibility, rapidity) - Training - Diffusion of information <p>There is a national-level network of RTD, the RITD (Réseau Inter-régional de Diffusion Technologique) that gathers the 21 regional RDT. Also, a National council of RDT was created in 2001 which function is to define broad priorities (e.g. Intellectual property, the realisation of a pedagogical guide, etc.)</p>
FR 19	Educnet	<p>Educnet is a national program which objective is to accelerate the development of the use of ICT in the education system. It supports the development of the Information Society within the French Education and Training system through the diffusion of information about ICT tools at the disposition of teaching personnel. The main instrument is the programme website which gives information on the introduction of computers in educational establishments, introduction of ICT in school programs, development of the opportunities of self-tuition, remote training and training for teachers and executive staff.</p>
FR 17	Support for the creation of thematic research networks (Réseaux de Recherche et d'Innovation Technologiques - RRIIT)	<p>A new key measure for the Government to structure public and private research and establish co-operation. The objective is to develop public and private partnerships with the creation of national thematic networks linking public laboratories and enterprises, including SMEs in well defined fields. The Network will receive a share of public research funding. The research should be on short term demand and contribute to the creation of innovative firms</p>
FR 15	Fund for the Promotion of Venture Capital (Fonds de Promotion pour le Capital Risque - FPCR)	<p>The Fund for the Promotion of Venture Capital (Fonds de Promotion pour le Capital Risque - FPCR) is one of the major sources of funding of risk capital in France. The Fund supports venture capital funds by a participation in their shares taken according to lighter and improved procedures introduced since 1998 to promote innovation financing. The FPCR takes minority shares in private venture capital funds (fonds communs de placement à risque) geared towards French and European innovating companies less than 7 years old in sectors where it is difficult to mobilise private funding: life sciences, ICT, electronics, new materials and environment and sustainable development. These funds invest more than 50% of their capital in French companies and more than 75% in European countries. The FPCR preferentially invests in funds that are set up and managed by new teams composed of scientists with industrial or financial experience, but also in national and regional venture capital funds.</p> <p>The FPCR is not to hold more than 30% of the funds' capital within a limit of EUR 12 million.</p> <p>The government, the Caisse des Dpts et Consignations (CDC) and the European Bank for Investment (BEI) hold equal shares of the capital of the FPCR, each amounting to EUR 50 million (the FPCR's total capital is EUR 150 million).</p>
FR 14	Support for the recruitment of post-doctorate in SME s	<p>The measure responds to one of the key priorities of the Government (mobility of researchers towards SMEs). The scheme is administrated by Regional Delegates of the ministry. It aims to support SMEs that wish to reinforce their R&D personnel and resources. Its main goals are to help industrial SMEs to structure their R&D and to enhance their technological level, in order to conduct significant projects, and to gain market shares.</p>

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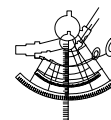
FR 13	Seed-capital funds (Fonds de Capital d'Amorçage)	This measure encourages the development of seed-capital to finance start ups, by assisting funds which invest in innovating companies preferentially connected to public research activities. The seed capital funds are private companies (mostly private venture capital funds), but research organisations and higher education institutions are encouraged to take part in them, so as to permit proximity between investors, business and academic worlds (however, research organisations and HEI should not have share exceeding 40% of the funds' capital and they should invest only via the constitution of a valorisation structure). The support takes the form of an advance of capital to valorisation structures reimbursable in a time span of 12 years. CDC-PME subsidiary of the Caisse des Dpts et Consignations is also a frequent investor. At the end of 2003, 5 thematic national funds and 7 generalist regional funds were selected of which 11 are operational. To the 4 national funds and 5 regional funds operational in 2002 (representing respectively 93 and EUR 43 million of funding) were added two national funds during 2003 (on Energy and Environment and on nano/microtechnology). Overall, at the end of 2003, the funds represented 137 millions euros (national and regional fund represented respectively, 93 and 42 millions euros). The government committed 23 millions euros. Overall, in September 2004, there were 7 national seed capital funds and 9 regional seed capital funds representing 231 millions euros managed to the benefit of 165 companies, mostly in life sciences sector (60%).
FR 12	Creation of regional incubators structures	It is seen as a key measure to support co-operation between public research bodies and enterprises. A national call for project was launched in March 1999 to select new incubator structures at a regional level. Every public or private structure is eligible for answering the call and no juridical or specific form of incubator structure is required. But the selection criteria is taking into account the partnership within the structure, which must include universities research structures, and shall also associate process consultants or associations for the development and creation of innovative companies. National public funding shall represent 50% of incubation expenses (buildings, equipment...) and was in 1999 said to be linked to the fulfilment of objectives (in terms of number of incubated projects mainly) by the incubator.
FR 11	National competition for creation of new technology-based firms	This measure is designed to diffuse innovation amongst the public and support new-technology based firms. The competition is open to anyone willing to set up a new technology-based firm.
FR 10	Mutual Funds for Innovation (Fonds Communs de Placement dans l'Innovation - FCPI)	The Mutual Funds for Innovation are an instrument of risk mutualisation complemented by a fiscal incentive. The FCPI give fiscal advantages to individual investors involved in such funds. Physical persons can make an equity investment in an innovative SME (not registered on the stock exchange) by buying Funds' shares, and as such, benefit from an important income tax reduction amounting to 25% of the invested amount. The Funds must invest at least 60% of their capital in innovative SMEs. In 2002, there were around 100 FCPI that raised approximately 2 billion Euros.
FR 9	SOFARIS (Société Française de garantie des financements des PME)	The SOFARIS scheme aims to provide a guarantee to entrepreneurs (venture capitalists) who do not have easy access to the banking system but who need a bank loan to start up or take over a new business. The Sofaris guarantee scheme enables to share the risk of the investment with the bank. There are different funds to guarantee creation, transmission, development, as well as short term financing needs or financial consolidation of SMEs. In particular, Sofaris provides guarantees to venture capital funds making equity investments in innovative SMEs. Sofaris can provide between 30% and 50% of the guarantee necessary to obtain a bank loan, medium long term credits and it covers up to 50% of equity investment by venture capitalists. This proportion can go up to 70% in case of ex nihilo creations.
FR 7	Support to the recruitment of PhD candidates on an applied research project within an enterprise - CIFRE convention	The measure is a part of several measures to support mobility of students and researchers. This scheme supports the recruitment of a student by a private enterprise. The recruited student does his PhD research on an applied topic in the enterprise, under the supervision of a university or public laboratory. The scheme aims to increase the number of executives in key positions within companies, who understand research issues and who have the capacity to liaise with specialised research bodies (academics, institutes, universities or other public research performers). The company is granted 14,635 per year during 3 years (half of the minimum salary, including overheads).
FR 6	Support for the recruitment of technicians on innovative projects (CORTECHS)	This measure contributes, along with other measures, to the mobility of researchers within SMEs. This scheme aims to support the recruitment of a technician, for one year, within the SME willing to develop an innovative project. The aim is also to support co-operation between research bodies - in charge of the monitoring of the research project and the training of the engineer - and the SME.

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FR 5	Corporate Tax Credit for Research Expenses - CIR	<p>The Corporate Tax Credit for Research Expenses (Crédit d'Impôt Recherche - CIR) is a key measure to support R&D investments within companies. The research Tax Credit is a horizontal measure, non-discriminatory across sectors of activity, and aimed at supporting corporate R&D investments by means of tax incentives.</p> <p>On the basis of a simple declaration, companies can benefit from a tax reduction for a large range of research-related spending, including R&D personnel expenses, R&D subcontracting, patenting costs, etc. The R&D spending is no longer only calculated in dynamic terms as it was the case until 2003, but it also takes into account a part in volume. The tax rebate corresponds to 45% of R&D spending incurred during the year, less the average spending for the previous two years, plus 5% of research expenses incurred during the year. The eligible expenses for which firms apply to the CIR are mainly associated with the human and technical resources allocated to research and subcontracting. The R&D tax credit is capped at EUR 8 million per company.</p>
FR 4	Technology Diffusion within SMEs (Procédure ATOUT)	<p>The objective is to improve the technological level of SMEs by enabling them to access technologies that are new to them but already applied in other segments of the economy.</p> <p>The Programme ATOUT' aims at fostering a technological lap forward by SMEs in order to improve their products or processes performances. Eligible firms should have less than 2000 employees. Support is granted to technical and commercial feasibility studies and pre-competitive research in priority sectors ('Key technologies', informatics, ICT, production and material technologies, electronic components).</p> <p>The support takes the form of either a subsidy of maximum 40 000 euros in the feasibility phase or a soft loan reimbursable in case of success covering up to 50% of the project cost with a ceiling of 200 000 euros in the realisation phase.</p> <p>In 2004, the management was given to ANVAR, but no new budgetary lines for the measure were allocated. As a result, no new projects were selected in 2004 and ANVAR manages projects decided before 2004.</p> <p>The future of the measure will depend on experimentations to take place regionally during 2005 as decided by the Law on decentralisation adopted in August 2004.</p>
FR 3	Support to Recruitment for Innovation (Aide au Recrutement pour l'Innovation - ARI)	<p>The scheme aims to support SMEs that wish to reinforce their R&D personnel and resources. It gives support to the recruitment by a SME of a researcher to conduct R&D activity. A subsidy is granted that covers up to 50% of the cost incurred by the company during the first year of hiring a scientist or an engineer with an unlimited contract. The subsidy is capped within a limit of 27 000 or 25 000 Euro depending on whether a post doc researcher or an engineer is recruited.</p>
FR 1	Support for Innovation (Aide à l'innovation)	<p>The "Aide à l'Innovation" is one of the main measure supporting innovative projects by SMEs in France.</p> <p>The scheme assists technology-based start-ups, newly created firms (less than three years) or firms willing to develop an innovative project. Eligible firms should be less than 2000 employees and be independent.</p> <p>The measure allows companies to develop new products and processes, to have access to external competencies for innovation projects, to find investors and/or partners in France or abroad, to have access to financial markets, etc.</p> <p>All the stages of the innovation process can be supported through this scheme: project definition and feasibility, project development and industrial launching of projects. It also supports technology transfer from public or private laboratories to industry and, in particular, to SMEs.</p> <p>The scheme takes the form of a grant covering no more than 50% of the costs of the project; it becomes a reimbursable loan in case of success of the project. Since 2001, it can also take the form of a BSA (Bon de Souscription d'Action) giving to ANVAR a right to purchase equity shares of the company in a limited time period at a price fixed in advance). Reimbursable loans and BSA represented 66% and 5% respectively of ANVARs global support budget in 2003.</p>

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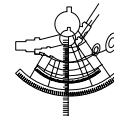


Annex 3: sources of further information

A3.1 Websites of key innovation organisations

Type of organisation	Name	Website
National Government Ministry/department	Ministry of Education	http://www.education.gouv.fr
National Government Ministry/department	Ministère de l'Economie, des Finances et de l'Industrie-DIGITIP	http://www.industrie.gouv.fr/accueil.htm
National Government Ministry/department	Ministère de la Recherche	http://www.recherche.gouv.fr/
National Government Ministry/department	Ministère de l'Aménagement du Territoire et de l'Environnement (MATE)	http://www.environnement.gouv.fr
National Government Ministry/department	MINEFI - DIGITIP (Ministry for Industry)	http://www.industrie.gouv.fr
National Government Ministry/department	CSRT-Conseil Supérieur de la Recherche et de la Technologie	http://www.education.gouv.fr
National Government Ministry/department	Ambassade d'Australie-ISR (Industry, Science & Resources)	http://www.dfat.gov.au
National Government Ministry/department	Delegation du Canada auprès de l'Ocde	http://www.dfait-maeci.gc.ca
National Government Ministry/department	The Ministry of Research, Technology Unit	http://www.recherche.gouv.fr/technologie
National public agency	National Association for Technical Research - ANRT	http://www.anrt.asso.fr/index.html
National public agency	National Institute for Intellectual Property (INPI)	http://www.inpi.fr
National public agency	ADEME	http://www.ademe.fr
National public agency	CNC	http://www.cnc.fr
Not-for-profit foundation/organisations	La Recherche	http://www.larecherche.fr
Not-for-profit foundation/organisations	La Tribune	http://www.latribune.fr
Not-for-profit foundation/organisations	Le Monde	http://www.lemonde.fr
Not-for-profit foundation/organisations	Le Nouvel Observateur	http://www.nouvelobs.com
Not-for-profit foundation/organisations	Libération	http://www.liberation.fr
Other	BIAC - Business and Industry Advisory Committee to the OECD	http://www.biac.org
Other	TUAC - Commission Syndicale consultative auprès de l'Ocde	http://www.tuac.org
Other	Délégation permanente de la République Fédérale d'Allemagne	http://www.germany-oecd.org
Other	Délégation permanente de la Finlande auprès de l'Ocde	http://www.formin.fi
Other	Délégation permanente de la Hongrie auprès de l'Ocde	http://www.gmv.gov.hu
Other	Délégation permanente de l'Italie auprès de l'Ocde	http://www.rappocse.org
Other	Délégation permanente de la République Tchèque auprès de l'Ocde	http://www.olis.oecd.org
Regional government/agency	CLORA	http://www.clora.net

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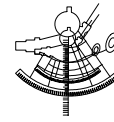
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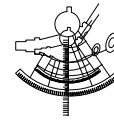
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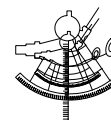
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<http://www.technologie.gouv.fr/technologie/concours/index.htm>

Incubateurs: <http://www.recherche.gouv.fr/technologie/mesur/incub/index.htm>

Fonds d'amorçage: <http://www.recherche.gouv.fr/technologie/mesur/incub/index.htm>

Crédit d'impôt recherche: <http://www.recherche.gouv.fr/technologie/mesur/cir/index.htm>

Réseaux de recherche et d'innovation technologique (RITT):

<http://www.recherche.gouv.fr/technologie/mesur/reseaux/index.htm>

Centres nationaux de recherche technologique:

<http://www.technologie.gouv.fr/technologie/cnrt/liste.htm>

Plates-formes technologiques: <http://www.technologie.gouv.fr/technologie/pft/index.htm>

Conventions Cortechs: <http://www.technologie.gouv.fr/technologie/mesur/aides/cortech.htm>

Bourses CIFRE: <http://www.anrt.asso.fr/cifre/index.html>

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