

INNO-Policy TrendChart –
Innovation Policy Progress Report

France

2009

PREFACE

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.

PRO INNO Europe® is an initiative of the Directorate-General for Enterprise and Industry (DG ENTR) which aims to become the focal point for innovation policy analysis, learning and development in Europe, with a view to learning from the best and contributing to the development of new and better innovation policies in Europe. Run by the Innovation Policy Directorate of DG ENTR, it pursues the collection, regular updating and analysis of information on innovation policies at national and European level.

INNO-Policy TrendChart serves the 'open method of coordination' approach laid down by the Lisbon Council in March 2000. It supports policymakers and innovation support measure managers in Europe by providing summarised and concise information and statistics on innovation policies, performances and trends. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

INNO-Policy TrendChart products

INNO-Policy TrendChart, previously the TrendChart on Innovation, has been running since January 2000. It currently tracks innovation policy developments in all 27 EU Member States, plus Brazil, Canada, China, Croatia, Iceland, India, Israel, Japan, Norway, Switzerland, Turkey and the US. The INNO-Policy TrendChart website (¹) provides access to the following services and publications, as they become available:

- a database of innovation policy measures in the 39 countries;
- a news service and related innovation policy information database;
- annual policy monitoring reports for all countries covered;
- the European Innovation Progress Report, an annual synthesis report bringing together key points in the INNO-Policy TrendChart.

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The report covers the period from July 2008 to June 2009.

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¹ See <http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=52&parentID=52> online.

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Executive Summary: public support for innovation – a snapshot

1. Main trends in the National Innovation System

Even if the situation seems less severe in France than elsewhere for the time being, the French economy has not escaped the deep recession experienced by all countries since the recent financial crisis. This is coupled with negative trends in (gross domestic product) GDP growth rate, - 0.4 % in 2008 and is still below the EU-27 average (0.8 %). According to the Organisation for Economic Cooperation and Development (OECD) Economic Outlook ⁽²⁾, the real GDP is expected to decrease by over 3 % during 2009, with a sharper decline in production and a probably weak recovery in 2010. Employment may very well suffer severely from the financial crisis in the coming months. Indeed, if the unemployment rate increased from 8 % in 2007 to 7.4 % in 2008, it nearly reaches 10 % in 2009 ⁽³⁾.

Undeniably, the crisis impacted all sectors yet particularly harmed the automotive industry, which is the main French (research and development) (R&D) performer. The crisis impacted large firms that in turn affected small businesses, and components suppliers to the automotive industry. The overall recruitment for the automotive sector also slowed (engineers, technicians). Other sectors such as biotech, were also impacted by the crisis and experienced a real drop in capital investment.

As of 2008, the government has decided multiple plans aimed at fostering the overall economy. These plans were given a political emphasis on several specific sectors (automotive sector, eco-technologies, nanotechnologies). These sectors either received anticipated funding (the government released the funding before the initially planned date) or extra funding.

As far as trends in the national innovation performance are concerned, France remains in the same grouping 'Innovation followers', as measured by the European Innovation Scoreboard (EIS). Over the last five years, France has positive indicators in the EIS Enablers indicators i.e. in the main drivers of innovation that are external to the firm and particularly in human resources, and finance and support; and Outputs indicators especially in terms of Innovators and economic effects indicators. On the other hand, France is below the EU average in Firm activities (firm investments, linkage, entrepreneurship and throughputs). In fact, for several years now, France's main weaknesses lie in a relatively low private resource mobilisation for R&D and a low innovative behaviour of companies.

France faces three challenges, which are not new: (a) the need to increase business R&D investment; (b) the need to improve transfer from public research to innovation; (c) the need to foster innovative small and medium-sized enterprises (SMEs) growth through better funding.

2. Main developments in public support for innovation

Although not stated in one a single document until 2009, the main objectives for the French innovation policy is to strengthen incentives towards the private sector, to invest more in research, to develop synergies between the key actors of the innovation process and to support SME competitiveness. For the first time in 2009, France conducted a large consultation exercise resulting in the National Strategy for Research and Innovation. The exercise identified three priorities in research and innovation over the next four years: (a) health, well being, food and biotechnologies; (b) environment emergency and eco-technologies; (c) information, communication and nanotechnologies.

² OECD Economic Outlook, 2009, Interim report, France.

³ OECD Economic Outlook, 2009.

As far as the innovation policy support system is concerned, France has strengthened an array of measures with increased importance devoted to indirect funding through tax breaks. The weakness of the support system is probably a result of, according to beneficiaries, a lack of visibility of the system due to numerous schemes managed by far too numerous actors.

Almost no new measures were created in 2008 to 2009. The policy was rather geared towards an improvement and strengthening of current policy instruments. The most important modification being the dramatic increase in the Research Tax Credit (CIR) and the second phase of the competitiveness cluster policy.

3. Appraisal of national innovation policy

The national innovation policy seems to address rather capably the three main challenges faced by France. The first challenge has been taken very seriously by the French government through two main instruments: the CIR (FR 109) and the Strategic Investment Fund. The second challenge is more difficult to tackle since the public leverage is more to be found in structural reforms of public research organisations (PROs) and universities rather than in providing additional funding. All the more, many measures have already been engaged in the 2006 law for research. As for the third challenge, to foster innovative SMEs growth through better funding, the increased funding dedicated to the French SME Agency (OSEO) and the creation of France Investment proves that public authorities are engaged in the challenge.

The overall structure of research, development and innovation (RDI) policy design and implementation continues to be clarified and improved. The division of labour and of responsibilities seem clearer: the orientation function will be handled by the government/ministries; the programming function will be handled by different kinds of intermediate organisations and funding agencies; and the implementation of research per se will be handled by research organisations, universities and their laboratories. However, although much effort was undertaken, numerous weaknesses have been identified with regards to the effectiveness of policy design. The main weaknesses deal with the:

1. availability of information about the innovation system;
2. use of available information to make the right policy choices;
3. ability to prioritise.

The impacts of the innovation policy on the overall economy are difficult to assess today for two main reasons: firstly there are not enough evaluations of the innovation measures implemented, and secondly, the economic crisis has impacted negatively businesses and the positive trends that emerged in 2006 may have been undermined by the current crisis. At the micro level, it seems that policy measures have nevertheless positive impacts on beneficiaries.

Futures actions should be oriented towards the evaluation of the reforms introduced to tackle the 'complexity' of the system (various actors providing numerous support). The reorganisation of the policy delivery in particular, the new or reformed bodies such as the French National Research Agency (ANR) and the OSEO will be evaluated. The national strategy for research and innovation, the first document of this kind established in France, must be monitored and information on its implementation to be retrieved. Finally, all the efforts in terms of concentrating the funding on large pieces of support measures (CIR, Competitiveness clusters) must also be monitored and evaluated on a regular basis.

1. Main trends and challenges in the National Innovation System

1.1 Recent economic trends and market developments

Even if the situation seems less severe in France than elsewhere for the time being, the French economy has not escaped the deep recession experienced by all developed countries since the start of the recent financial crisis.

However in France, the economic trend continues to show a marked decline. Since 2000, the output growth has kept slowing. After a slight improvement in 2006 and 2007 with an increase in GDP growth rate that reached 2.2 % and 2.3 % respectively, it decreased significantly to 0.4 % in 2008 and is still below the EU-27 average (0.8 %). Moreover, in the context of the economic crisis, the prospects remain mitigated and highly uncertain. According to the OECD Economic Outlook ⁽⁴⁾, the real GDP is anticipated to decrease by over 3 % during 2009, with an intensified – sharper – decline in production and a likely weak recovery in 2010.

In 2008, the French GDP per capita in purchasing power standards (PPS) was still above the EU-27 average (at the rate of + 7.3 percentage points) and above the EU-15 average, especially that of Germany. Since 2002, the French GDP per capita relative to the EU-27 has kept declining slowly but steadily.

On the other hand, labour productivity per person employed has remained relatively stable over the last few years and is still one of the highest of the EU. Indeed, France is fourth overall behind Belgium, Ireland and Luxembourg, and, 21 % above the EU-27 average. This means that French workers produce more than the average EU worker.

Since 2005 the total employment growth continued to increase and reached 65.2 % in 2008 (+ 0.6 % between 2007 and 2008 and + 1.5 % between 2004 and 2008). But the French rate remains below the EU-27 average (rising to 65.9 %) and is still one of the lowest amongst the developed countries. Employment may very well suffer severely from the financial crisis in the coming months. Between 2007 and 2008, the total employed population dropped by nine percentage points. All the more so as after a positive period of decline of the unemployment rate since 2006, the current economic crisis has suddenly impeded this modest trend. The unemployment rate increased from 8 % in 2007 to 7.4 % in 2008, and nearly reaches 10 % in 2009 ⁽⁵⁾.

According to Eurostat, after several years of decline the rise of the annual inflation rate in France in 2008 (+ 1.6 % with regards to 2007) is mainly due to an increase in the price of energy and raw materials, particularly food. The French rising inflation rate follows the European trend which experienced a 1.4 % increase from 2007 to 2008.

Whereas the French investment rate coming from enterprises is for the most part in line with the EU level, in 2008 it was ahead of the EU average. It represented 18.7 % of GDP compared to 18.5 % on average for the EU-27. In July 2008, managers declared a 4 % increase in investments for the manufacturing sector and a 3 % increase for the overall industry sector in 2007 ⁽⁶⁾.

The most positive figures concern the foreign direct investment intensity which seems to have made good progress since 2004 (+ 5.2 % between 2004 and 2007) and was 4 % above the EU-27 average in 2007.

⁴ OECD Economic Outlook, Interim report, France.

⁵ OECD Economic Outlook.

⁶ See http://www.insee.fr/fr/themes/conjoncture/fiche_tableau_de_bord.asp?id_tbc_the=5 online.

However, in terms of foreign trade balance, the French situation has been worsening since 2004. The balance of trade deficit reached EUR 38.8 billion in 2007, with this figure amounting to EUR 53 billion in 2008⁽⁷⁾. Imports of goods continue to grow more rapidly than exports. The energy sector shows the most significant deficit with a balance deficit of EUR 58.1 billion in 2008.

Exhibit 1: Comparable indicators of economic performance

Indicator	National performance		EU-27 average	
	2005	2008	2005	2008
GDP per capita in PPS (EU-27=100)	110.6	107.4	100*	100*
Real GDP growth rate (% change previous year)	1.9	0.4	2.0	0.9
Labour productivity per person employed (EU-27=100)	122.0	121.0	100*	100*
Total employment growth (yearly % change) ⁸	0.6	0.5	1.0	1.0
Inflation rate (average annual)	1.9	3.2	2.2	3.7
Unit labour costs (growth rate)	- 0.2	- 0.3	-0.6	0.5
Public balance (net borrowing/lending) as a % of GDP	-2.9	-3.4	-2.4	-2.3
General government debt as a % of GDP	66.4	68.1	62.7	61.1
Unemployment rate (as a % of active population)	63.9	65.2	63.6	65.9
Foreign direct investment intensity	4.7	:	1.7	:
Business investment as a % of GDP	16.3		:	:

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

Key: (*) EU-25 average, (^) or latest available year (for example: 2005); (:) not available.

1.1.1 The credit crisis and its effect on innovation activity

Like in other EU countries, highly R&D-intensive industries suffer from the financial crisis. The automotive industry, pharmacy, communication and aerospace sectors are the most R&D-intensive sectors in France⁽⁹⁾.

The automotive industry is the first sector in France in terms of R&D volume with approximately EUR 4 billion of R&D expenditures in 2006 or 17.5 % of business R&D. Larger firms (Renault group, PSA and Valeo) make up 93 % of automotive R&D. The overall amount spent in France is not comparable to Germany (EUR 11.5 billion of R&D expenses and 30 % of business R&D), but the R&D intensity (R&D expenses/ value added) is comparable⁽¹⁰⁾.

The French automotive firm Renault has reported a EUR 2.7 billion loss in the first semester of 2009⁽¹¹⁾ whereas it showed a EUR 1.6 billion profit in the first semester 2008 before the economic crisis impacted the automotive sector. The R&D funding capacity has also been impacted by this overall loss since R&D expenses have decreased by 25 % compared to the first semester of 2007. Some projects are therefore delayed.

The crisis impacted large firms that in turn impacted small businesses, components suppliers to the automotive industry. By and large, these small businesses usually have a limited number of clients, or even just one. The crisis affected them very severely.

⁷ See http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATTEF08452 online.

⁸ See <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsieb050&plugin=1> online.

⁹ Data on Business R&D spending of the six major research branches in France in 2005 : automotive industry (€3.5b) , pharmacy (€3.1b), communication (€2.9b) and aerospace sectors (€2.6b), precision instruments (€1.3b), chemistry (€1.3b) Ministry for higher education and research, DEPP, 2008.

¹⁰ Ministère de l'économie, Direction générale du Trésor, 2008, Lettre Trésor-ECO n°43, September.

¹¹ Le Monde, *Renault a perdu 2,7 milliards d'euros au premier semestre*. 31.7.2009.

The overall recruitment for the automotive sector also slowed (engineers, technicians). Job offers concern replacement rather than strengthening of teams. However, as far as human resources are concerned, and despite the crisis and R&D budget reduction, job market experts observed a strategic reorientation of the automotive sector towards R&D. For instance, R&D positions are not eligible for voluntary departure plans⁽¹²⁾. Several departure plans were announced in 2008 (e.g. PSA, Valeo). Specific competences are requested, for instance jobs linked to the environment (cells engineers, electronic engineers). R&D departments now invest in renewable energies, clean engines, etc.

Sectors such as biotech were also impacted by the crisis. According to France Biotech⁽¹³⁾, the association for entrepreneurs in life sciences, a real drop in capital investment impacted the French biotech sector. Funding decreased by 79 % in 2008 compared to 2007 (EUR 143 million in 2008 compared to EUR 694 million in 2007). Investments in firms listed in the stock exchange (EUR 12 million in 2008) have plummeted (-98 %). Venture capital investments in non-listed firms (EUR 132 million in 2008) dropped by 29 % at the beginning of 2009 and the trend continues towards a decline.

Business creation in the innovative sectors, namely ICT, pharmaceuticals, biotechnology and new material seem to have achieved a worse performance in 2008 than the rest of the sectors. Business creation in innovative sectors decreased by 3.8 % in 2008 compared to a general increase of 1.8 % for all other sectors. Business creation in innovative sectors mostly deal with computer sector (76 %) and 12 % in radio, TV and movie sectors. However in these two sectors creation decreased by 3.7 % and 1.6 % respectively in 2008. Another indicator of the financial crisis impact will be the number of applications for the national competition in the creation of new technology-based firms (FR 11). However, the number of applicants has remained approximately the same since 2005.

Government use of crisis to boost spending on new innovative technologies

Starting in 2008, the government settled on multiple plans aimed at fostering the overall economy. These plans were given a political emphasis in several specific sectors (automotive, eco-technologies, nanotechnologies). These sectors either received anticipated funding (the government releases the funding before the initially planned date) or new (extra) funding.

An umbrella Recovery plan⁽¹⁴⁾ was launched by the French government on 2 February 2009. It is coordinated by a specially appointed Minister for Recovery. A total of 1 000 projects will be financed through this plan. The parliament voted a EUR 26 billion credit for this recovery plan, of which 75 % will be spent in 2009. The additional investments benefit transport infrastructures, higher education and research, the State real estate, housing, urban renovation or health.

As for research and innovation, the government has launched several crisis plans as part of the recovery plan. For instance, the government has decided to boost block grants to PROs. This corresponds to an increase of EUR 325 million for 2009, or an increase of 5.4 % instead of the originally planned 3.7 %⁽¹⁵⁾. These large investments must allow for anticipated investments in very large research infrastructures⁽¹⁶⁾ and take into account anticipated investments in buildings. This is designed to benefit public and private French and European researchers, high-tech enterprises that develop large research equipments, and the construction sector.

A EUR 70 million innovation plan for the nanotechnology sector, Nano-INNOV⁽¹⁷⁾ was launched in May 2009 by the Ministry of Higher Education and Research and will also benefit the national industry and public research. The plan will focus on the creation of nanotechnology integration centres in

¹² See http://www.autorecruite.com/actualite_automobile/automobile-face-a-la-crise-le-secteur-mise-sur-l-innovation-00229.html online.

¹³ See <http://www.france-biotech.org> online.

¹⁴ See <http://www.relance.gouv.fr/index.php> online.

¹⁵ See <http://www.enseignementsup-recherche.gouv.fr/cid24282/signature-des-conventions-relatives-au-plan-de-relance-avec-les-organismes-de-recherche.html> online.

¹⁶ Très grandes infrastructures (TGI).

¹⁷ See <http://www.enseignementsup-recherche.gouv.fr/cid25281/nano-innov-un-plan-en-faveur-des-nanotechnologies.html> online.

Grenoble, Saclay (Ile de France) and Toulouse where basic research can liaise with industry. A Steering committee with representatives from nanosciences, nanotechnologies and industries has been set up to oversee funding allocation.

In the field of environment and eco-technologies, the Ministry for Economy, Industry and Employment, and the Secretary of State for Ecology jointly launched in July 2008 a strategic committee for eco-industries (Cosei). Three working groups were in charge of brainstorming and making proposals for an eco-tech plan: (a) innovation and diffusion of eco-technology; (b) rules and regulations to foster eco-industry performance; (c) small and medium eco-industries.

The Eco-tech 2012 plan (¹⁸) was finally opened in December 2012, composed of a set of actions. The plan is based on a public-private partnership. The Competitiveness clusters are also used as a vehicle. Six priority actions were presented that clearly contribute to fostering innovation:

- a selection of 50 R&D projects for eco-industries funded by the Ministry for Economy, Industry and Employment and managed by the OSEO and the [French Environment and Energy Management Agency \(ADEME\)](#) (EUR 27.7 million total) in parallel to a new ANR programme on Ecotech;
- new call for Competitiveness clusters in the field of eco-technology;
- a EUR 60 million commitment from France Investment (FR 76) to invest in funds and enterprises in the environment sector in 2009;
- the implementation of two programmes for controlling environmental norms;
- a call for proposal for winning the Green Numeric growth prize (¹⁹).

With regards to innovative businesses, the Recovery plan has decided on an anticipated reimbursement of the CIR. To this end, EUR 4 billion will be spent to reimburse the tax. Traditionally, the tax credit is reimbursed over three years, but will now be reimbursed once at the beginning of 2009. This particular feature was only accessible to businesses benefiting from the Young Innovative Enterprises status (FR 73).

1.2 Recent trends in the national innovation performance

Over the years, France has maintained the same position in the EIS. According to the EIS 2008, France ranks tenth among EU countries in terms of innovation capacity. The global innovation index for France remains above the EU-27 average, but is slightly declining. France is outdistanced by Germany (ranked third) and the UK (ranked sixth) and for the past five years has kept its position within the second main grouping of innovative countries comprised of Austria, Belgium Ireland and the Netherlands. France is among the 'Innovation followers', which means that its innovation performance is above the EU average but below Denmark, Finland, Germany and the UK in the 'Innovation leaders' grouping. France is characterised by an annual progression rate lower than that of the EU-27 average.

In 2008 the EIS revised the methodology usually applied and has increased the number of innovation dimensions assessed from five to seven and grouped into three main blocks: enablers, firm activities and outputs. Over the past five years, France has been above the EU average in two such dimensions:

- enablers i.e. the main drivers of innovation that are external to the firm and in particular to human resources, and finance and support;
- outputs, specifically in terms of innovators and economic effects indicators.

¹⁸ See <http://www.gouvernement.fr/gouvernement/faire-de-la-france-un-pays-en-pointe-dans-le-domaine-des-eco-activites> online.

¹⁹ See http://www.minefe.gouv.fr/discours-presse/discours-communiqués_finances.php?type=communiqué&id=3188&rub=1 online.

On the other hand, France is below the EU average in the firm activities dimension (firm investments, linkage, entrepreneurship and throughputs). Indeed, over the last several years, its main weaknesses lie in a relatively low private resource mobilisation for R&D, a low innovative behaviour of companies, especially SMEs, as well as a rather weak collaboration between the private and the public sectors.

General indicators

With R&D expenditures representing 2.08 % ⁽²⁰⁾ of its GDP (compared to 2.12 % in 2006), France went on reducing its R&D expenditures in 2007 in relative terms. As a consequence France has not yet reached the 3 % Lisbon objective. However, the French ratio is still above the EU-27 average although the R&D intensity is considerably lower than in the early 1990s (e.g. 2.38 % in 1992). This lower intensity could be caused by the shift from manufacturing to services, where innovation is less easy to capture. According to Eurostat data, R&D spending in the service sector is around 10 % of total business R&D spending these last year ⁽²¹⁾. Overall, in 2008, France remained once more in sixth position after Austria, Denmark, Finland, Germany, and Sweden, with regards to expenditure on R&D as a percentage of GDP.

According to the last data available (2006, Eurostat), funding of gross expenditure on research and development (GERD) by the French private sector increased compared with 2004 and reached 52.4 % in 2006 (+0.7 %). Despite this slight improvement, the French percentage of GERD financed by the business enterprise sector is still below the overall objective of having two-thirds of GERD financed by private enterprises by 2010 (set in Lisbon). France is in seventh place in the EU concerning the effort intensity in the domain of private R&D. France is above the EU-27 average, but remains largely outdistanced by Austria, Denmark, Finland, Germany, Luxembourg and Sweden. In 2006, large firms spent 39 % of R&D expenditures. This share has remained constant over the past years. Smaller firms spent 26 % of the total R&D expenditures for the private sector in 2006 (this share was 20.3 % in 2000) ⁽²²⁾.

In 2006, R&D expenditures performed by the business sector (European Bank for Reconstruction and Development) in France corresponded to a share of 61.9 % of total GERD (average of 62.5 % in the EU-27 and 67.9 % in OECD countries).

The main innovation drivers

The EIS 2008 based its assessment of EU-27 innovation performance on 29 indicators. As far as France is concerned, and over the five past years, the main drivers for the improvement in innovation performance concern human resources, finance-support and throughputs. Indeed, France sets itself apart in innovation drivers by ranking sixth in human resources and seventh in the funding and support to innovation.

Specifically, its main strengths result from growth in S&E and SSH doctorate graduates (5.1 %), broadband access by firms (16.1 %) and community designs (4.9 %). The number of science and technology graduates in mathematics, science and technology remains relatively stable and reached 20.5 % in 2007. The French rate is far above that of the EU-27 (13.5%). However, France lags behind in lifelong learning.

In outputs, France ranks eighth, mainly due to the efficiency gain of innovative enterprises and the medium and high-tech manufacturing exports.

The number of Internet users exceeded 32.3 million in the first semester 2008. It stands at 1.6 million additional Internet users as compared to June 2007, and corresponds to a 5.3 % increase. The

²⁰ Eurostat, provisional data.

²¹ The share of the service sector in the BERD was 12.5 % in 2002 and 10.8% in 2006. Eurostat data on Nace sectors G to Q (Service) (Business enterprise R&D expenditure (BERD) by economic activity and source of funds) and calculus by Technopolis.

²² OECD Main Science and Technology Indicators, May 2007.

population share aged 11 and older using the Internet has sharply risen from 49 % in 2007 to 62 % mid-2008. France is catching up and improving on its EU ranking, now eleventh after gaining three places ⁽²³⁾.

The broadband penetration rate, i.e. the number of dedicated, high-speed connections per 100 inhabitants, has kept improving over the past few years from 13.9 % in 2005 to 26.2 % in 2008, and continues to be above the EU-27 average. According to the EIS 2008, in terms of broadband access by firms, France has progressed with a growth of 16.1 % over the last five years.

Within the EIS 2008 throughputs grouped under firm activities, the community designs ⁽²⁴⁾ indicator has shown a notable steady growth. Over the past five years it rose by 4,9 %.

Unchanging indicators

Concerning the intellectual property domain, the performance of France is quite stable. The number of French patents published by the European Patenting Office (EPO) remained almost unchanged and have been at a standstill since 2004. According to the EIS 2008, the growth of EPO patents was only 0.1 % over five years. Nevertheless, it is worth noticing that patents registered in France slightly increased by 2.7 % between 2007 and 2008. As for international patents registration, after a long period which started in 2000, while French registrations have doubled, there was a slight downward trend with a decrease of 0.9 % between 2007 and 2008.

On the whole, regarding the number of registered patents (OEB), France is in the middle of the pack in the EU, that is, above the EU-27 average but markedly outdistanced by Germany and the Nordic countries.

On the other hand, in firm activities, France has not improved and ranks above the EU-27 average. In particular, France ranks 11th with respect to firm investments and 13th for its technology balance of payments flows as well as for new trademarks and designs. France is also clearly outdistanced in the non-R&D innovation expenditures.

The declining indicators

Eurostat 2007 figures show that the percentage of GDP concerning early-stage venture capital investments is falling compared with the previous years. However, the gap between France and the EU-15 average has clearly shrunk due to the significant decline of the latter from 0.053 in 2006 to 0.02 in 2007.

As for financing, funds raised through capital investment have in fact slightly run low compared to 2006 and accounted for EUR 9.9 billion in 2008. However, the year 2009 should see a market increase, since in the first semester alone the funds raised had already reached EUR 8.8 billion.

To sum up, according to the National Research and Innovation Strategy, the main strength of the French innovative system lies in strong public support to R&D and innovation. The main weaknesses remain once again in the poor link between public research and businesses as well as in a scarce innovation capacity mainly due to a lack of private R&D investment.

²³ SESSI 2008, Tableau de Bord de l'Innovation, Décembre 2008, 20ème édition.

²⁴ According to the EIS 2008, the 'community designs' indicator corresponds to the number of new community designs. A registered community design is an exclusive right for the outward appearance of a product or part of it (...).

Exhibit 2: European Innovation Scoreboard: country pages

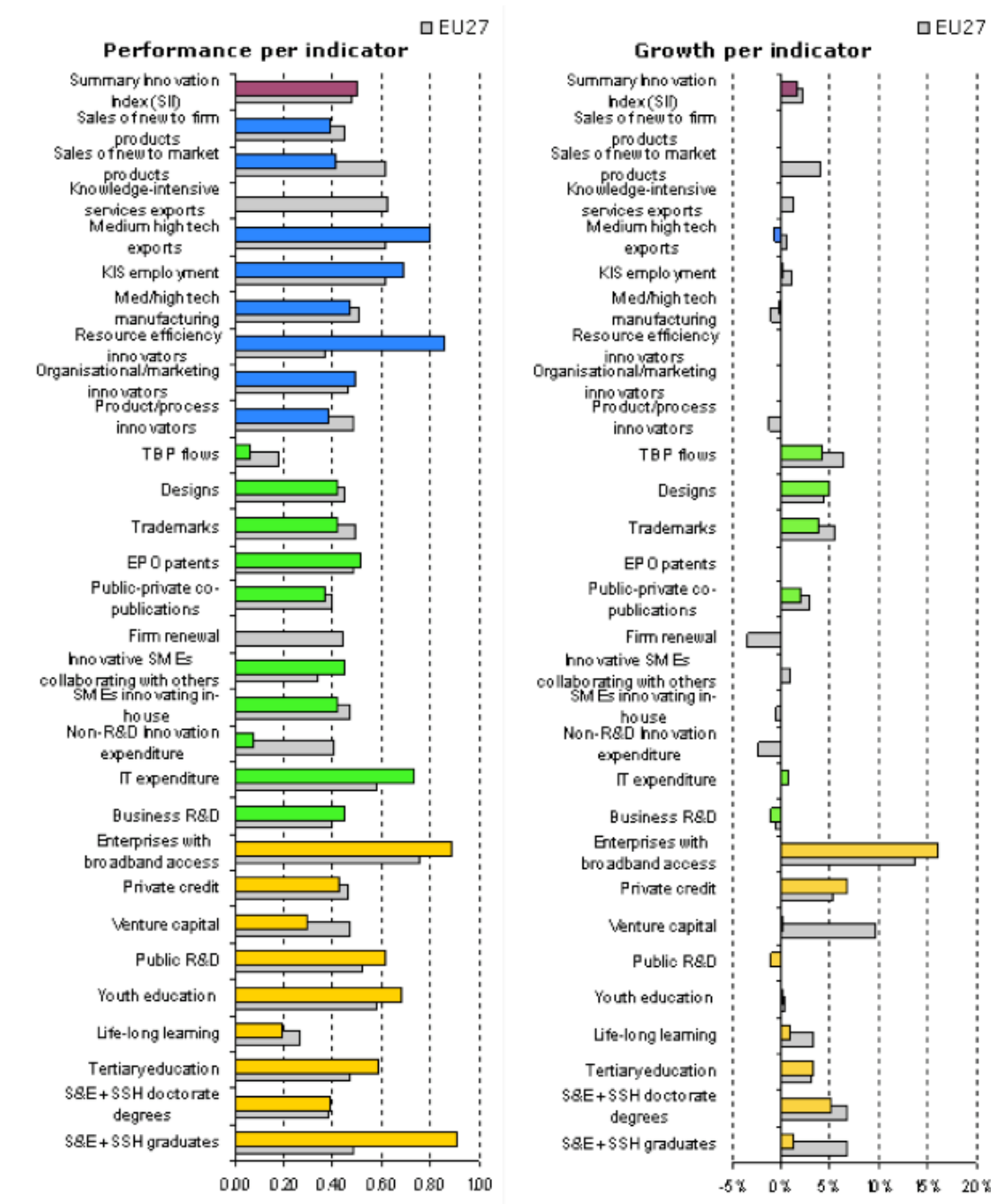


Exhibit 3: European Innovation Scoreboard: country pages

	2001	2002	2003	2004	2005	2006	2007	2008	Growth
SII				0,460	0,461	0,465	0,495	0,497	1,7%
ENABLERS									3,6%
Human resources									2,2%
1.1.1 S&E and SSH graduates	52,6	--	58,7	--	66,4	62,0	--	--	1,4%
1.1.2 S&E and SSH doctorate graduates	1,13	--	0,93	--	1,10	1,13	--	--	5,1%
1.1.3 Tertiary education	22,6	23,5	23,6	24,1	25,4	26,2	26,8	--	3,2%
1.1.4 Life-long learning	--	--	7,1	7,1	7,1	7,6	7,4	--	1,0%
1.1.5 Youth education	--	--	81,3	81,7	83,4	83,2	82,4	--	0,3%
Finance and support									5,3%
1.2.1 Public R&D expenditures	--	--	--	0,77	0,77	0,75	0,74	--	-1,0%
1.2.2 Venture capital (3-year average)	--	--	0,098	0,108	0,100	0,105	0,099	--	0,3%
1.2.3 Private credit	0,92	0,91	0,94	0,98	1,01	1,08	1,23	--	6,8%
1.2.4 Broadband access by firms	--	--	49,0	--	--	86,0	89,0	--	16,1%
FIRM ACTIVITIES									1,5%
Firm investments									0,0%
2.1.1 Business R&D expenditures	0,00	0,00	0,00	1,36	1,30	1,32	1,31	--	-0,9%
2.1.2 IT expenditures	--	--	--	3,0	3,1	3,1	--	--	0,8%
2.1.3 Non-R&D innovation expenditures	--	--	--	0,33	--	--	--	--	0,0%
Linkages & entrepreneurship									0,7%
2.2.1 SMEs innovating in-house	--	--	--	28,3	--	--	--	--	0,0%
2.2.2 Innovative SMEs collaborating with others	--	--	--	11,5	--	--	--	--	0,0%
2.2.3 Firm renewal (SMEs entries + exits)	--	--	--	--	--	--	--	--	--
2.2.4 Public-private co-publications (2-year avg.)	--	23,7	22,6	23,1	25,9	27,9	--	--	2,1%
Throughputs									3,2%
2.3.1 EPO patents	118,7	118,5	125,9	132,4	119,2	--	--	--	0,1%
2.3.2 Community trademarks	51,8	55,4	66,4	70,0	67,3	83,8	94,4	--	3,8%
2.3.3 Community designs	--	--	46,3	73,4	81,3	99,1	107,5	--	4,9%
2.3.4 Technology Balance of Payments flows	--	0,36	0,36	0,40	0,44	0,42	--	--	4,2%
OUTPUTS									-0,1%
Innovators									0,0%
3.1.1 Product/process innovators (SMEs)	--	--	--	29,9	--	--	--	--	0,0%
3.1.2 Marketing/organisational innovators (SMEs)	--	--	--	41,3	--	--	--	--	--
3.1.3 Resource efficiency innovators									
3.1.3a Reduced labour costs	--	--	--	34,9	--	--	--	--	--
3.1.3b Reduced use of materials and energy	--	--	--	15,9	--	--	--	--	--
Economic effects									-0,1%
3.2.1 Employment in medium-high/high-tech manufacturing	7,16	6,82	6,38	6,38	6,26	5,93	6,35	--	-0,1%
3.2.2 Employment in knowledge-intensive services	15,29	15,60	15,55	15,20	15,55	15,87	15,76	--	0,3%
3.2.3 Medium/high-tech manufacturing exports	--	60,5	60,0	60,0	59,4	58,9	--	--	-0,7%
3.2.4 Knowledge-intensive services exports	--	--	--	--	--	--	--	--	--
3.2.5 New-to-market sales	--	--	--	6,2	--	--	--	--	0,0%
3.2.6 New-to-firm sales	--	--	--	5,6	--	--	--	--	0,0%

Note: indicators in green are above EU-27 average; indicators in red are below EU-27 average.

1.3 Identified challenges

France is a large European country, although not considered as an innovation follower. The three innovation challenges were identified several years ago but the trend has continued downward since then.

Exhibit 4: Main innovation policy challenges

Description of challenge	Relevant indicators and trends
1. Increase business R&D investment	<ul style="list-style-type: none"> EIS 2.1.1 Business R&D expenditures - Above EU-27 average - Negative trend (-0.9)
2. Improve transfer from public research to innovation	<ul style="list-style-type: none"> EIS 2.2.4 Public-private co-publications – Below EU-27 average - (positive trend) Share of researchers from the public sector awarded in the competition for the creation of technology-based enterprises (FR11) – Above 50% - Positive trend Share of PRO active in technology transfer (53% declare not to be active) - BIPE study²⁵
3. Foster innovative SMEs growth through better funding	<ul style="list-style-type: none"> EIS 1.2.2 Venture capital (3-year average) –Below EU-27 average EIS 2.2.1 SMEs innovating in-house - Below EU-27 average

Challenge 1: Increase business R&D investment

The first challenge is related to one of the major EIS indicators: business R&D expenditures (indicator 2.1.1). Even though the EIS ranks France above the EU-27 average, the indicator has been decreasing steadily since 2002 (from 1.41 % of GDP in 2002 to 1.30 % in 2005 (²⁶)), except for a short recovery period in 2005 to 2006. This challenge remains of primary importance since R&D investment is regarded as a way to prepare for future growth. Moreover, with the current crisis, one might expect cuts in private R&D spending. The National Reform Programme (NRP) 2008 to 2010 does not explicitly have as an objective to increase business R&D spending.

Challenge 2: Improve transfer from public research to innovation

The transfer from research to innovation encompasses various dimensions. There is not a single indicator measuring the transfer from public research to innovation. However, this challenge can be assessed through different alternatives: researchers mobility to the private sector, public researchers creating businesses, number of patents, share of PROs with active technology transfer policy.

For instance, the mobility of researchers from public research to the private sector can be measured by the rate of researchers laureates in the national competition for new technology-based firms. For many years, public researchers had remained under 50 % of laureates. It was only in 2006 that public researchers outnumbered laureates from the private sector. When established in 1999, this competition was meant to reveal public research projects.

²⁵ Kergueris J., Saunier C., (2009).

²⁶ Eurostat.

As for other actors, a recent study (2008) for the French senate indicated that according to a survey carried out on PROs, 53 % declared not to be active in technology transfer. Technology transfer is greatly concentrated on a few PROs (e.g. CEA). This is in line with a previous report on research commercialisation that stressed France was lagging behind other countries in terms of public-private transfer. To give an international overview, the share of private resources of public academic laboratories in France is only 2.7 % compared to 12.7 % in Belgium, 8.7 % in Canada, 12.6 % in Germany, 5.6 % in the UK and 5 % in the USA (²⁷). Ranked high on the NRP 2008 to 2010 (²⁸) list of objectives is transferring knowledge from public research to the business community and providing support for corporate innovation.

Challenge 3: Foster innovative SMEs growth through better funding

The EIS indicators dispatch an indicator on venture capital that is below the EU average. Indeed, the major problem is not the availability of venture capital but rather early stage seed capital. Venture capitalists seem to favour later stages of firms development. Although the venture capital activity has been multiplied by 3.6 over 10 years in France (1996 to 2006), venture capital is only 5 % of funds invested by investment funds whereas LBO/transmission is 80 % of the activity (²⁹). Even though the data for France concern European figures, the USA spends twice as much in percentage of the overall funds invested in the early stages of firms development. The NRP does not directly address this issue.

These three challenges are in line with the findings of the working group on the Innovation ecosystem for the National Strategy for Research and Innovation. The working group has developed a SWOT analysis of the French innovation ecosystem. The major weakness of France is the difficulty to transform high-quality research into good innovation and economic growth (³⁰).

Apart from the strengths and weaknesses, the working group identified three major threats. One general threat is the relative inertia of the French system where reforms are difficult to undertake. The two other threats are more practical (very early removal of venture capital from start-ups; internationalisation of R&D and attractiveness issues are insufficiently taken into account). Opportunities identified are the current crisis context that can be a catalyst for change and the overall willingness of higher education to develop an entrepreneurship culture.

²⁷ IGF, IGAENR (2007).

²⁸ Lisbon Strategy for Growth and Jobs, France National Reform Programme 2008-2010, October 2008.

²⁹ RETIS (2008).

³⁰ Weaknesses of the French innovation system: French Research is not specialised in the most dynamic scientific fields; Difficulty for economic activities to develop in the most dynamic service or industry sectors Low structuring and effectiveness of research commercialisation; Large business are not sufficiently opened to start-ups in the field of innovation; Weak entrepreneurship culture; Insufficient openness to the world; An overall innovation support system too complex; French venture capital does not provide capital over the long run; Insufficient evaluation of the public support to innovation scheme. Strengths of the French innovation system; Overall quality of research, Quality of education; Public support that makes R&D costs in France very competitive, Better acknowledgement of innovation in SMEs (source: 2009 National Strategy for Research and Innovation)

2. Public support to innovation

2.1 Main objectives for innovation policy

National objectives for the innovation policy were, until very recently, reflected in laws that were passed in 1999 and 2003 and in an array of measures developed over the years. In France there was no real framework document summing up the objectives for the French innovation policy. One major change to highlight for the period 2008 to 2009 is in the development of a National Research and Innovation Strategy that provides an overview of the French state of play and policies implemented.

The general aim of French innovation policies is to convey an increased support to business R&D and to innovation. The French innovation policy focuses on three priorities ⁽³¹⁾.

1. **The strengthening of the incentives made towards the private sector to invest more in research.** The French government aims at fostering the R&D effort of the private sector in the hopes that R&D expenditures by the private sector reaches 2 % of GDP, primarily owed to tax incentives such as the CIR (FR 109) or Young Innovative companies (FR 73).
2. **The setting up of synergies between the key actors of the innovation process at large within Competitiveness clusters amongst other measures.** This relates to the improvement of cooperation and technology transfer. One of the key measures in this field consists of strengthening the Competitiveness cluster policy (FR 62 and FR 119).
3. **The support for SMEs' competitiveness.** The French government is eager to promote the development of competitive SMEs. The usual approach taken with the French economy is to create new businesses without being able to make them grow. In order to cope with this problem, increased funding was devoted to the OSEO and new support measures were introduced to favour SME development such as the Innovation Development Contract (FR 67).

National Research and Innovation Strategy

The first edition of the National Research and Innovation Strategy was launched in January 2009 with the participation of a great diversity of national stakeholders. The purpose was to get an overview of research and innovation challenges, to establish priorities, to align the actions of all players and to optimise allocation of public funding. The idea is to update the strategy every four years.

The process objective was to set research priorities that take into account knowledge, society and economic issues. This kind of scientific forecasting exercise was totally new in France and after a six month discussion between 600 key figures from various backgrounds (public, private, non profit associations, civil society), the Minister of Higher Education and Research presented in July 2009 the three research priorities of utmost importance identified during the National Research and Innovation Strategy design. They are:

- health, well being, food and biotechnologies;
- environment emergency and eco-technologies;
- information, communication and nanotechnologies.

But above all, among the choices made two are related to innovation:

- shifting the frontiers of knowledge;
- supporting national economy by strengthening French companies' competitiveness and building a knowledge society entrepreneurship spirit.

³¹ SESSI 2008, Tableau de Bord de l'Innovation, Décembre 2008, 20ème édition.

Generally speaking, the National Strategy for Research and Innovation expresses the need to place science and knowledge at the heart of society and acknowledges the major role of innovation for enterprise competitiveness. Moreover, the emphasis is placed on the necessity to consistently examine the opportunities of research valorisation.

More precisely, in order to acquire an efficient and competitive innovation ecosystem, the National Research and Innovation Strategy highlighted the following targets.

1. To avoid the resource scattering and aim at excellence by:
 - a. bringing closer universities, research bodies, enterprises and Competitiveness clusters;
 - b. making more professional the research valorisation/commercialisation systems;
 - c. simplifying public-private partnerships.
2. To reinforce the growth capacity of new innovative companies.
3. To strengthen the access to 'public market' for innovative SMEs.
4. To spread entrepreneurial spirit.

Law for modernising the economy

The determination to support the competitiveness of SMEs was also taken on board in the 2008 Law of Modernisation of the Economy⁽³²⁾. This law has four main objectives: (a) to ease business creation and life; (b) to develop competition; (c) to reinforce territorial attractiveness; (d) to improve the funding of the economy.

Among the measures enforced by this law, a number of them are of particular importance in terms of support to innovative SMEs. First, the law has established a legal competitive framework for investment funds, an easing of the proximity investment funds system (FIP), as well as an easier use of community risk capital tools. Moreover, a tax framework favourable to start up companies, similar to what already exists in the US, has been created. The entrepreneur can now combine a system of limited liability companies and profit by a taxation of its results at the level of its own incomes (principle of tax transparency).

In addition, the law has developed a pilot measure inspired by the US Small Business Innovation Research by offering to innovative SMEs preferential access to public procurement. The law allows, on an experimental basis, to assign to these companies up to 15 % of the average yearly share of their high technology market, R&D and technological studies below the formalised process line, or to grant them preferential treatment in case of equivalent offers.

France National Reform Programme

The French political strategy for innovation concerns the France NRP in the framework of the Lisbon Strategy for growth and jobs. In the field of innovation, this first axis of the NRP 2008 to 2010 highlights the importance of 'shifting the technological frontier by strengthening the innovation capacity'. This first axis is broken down into five general objectives: (a) to invest more and with greater effectiveness in public research; (b) to ensure knowledge transfer from public research to the business community and provide support for corporate innovation; (c) to develop a digital economy; (d) to ensure excellence in higher education; (e) to ensure quality training for all.

³² See <http://www.modernisationeconomie.fr> online.

Exhibit 5: Main innovation policy documents

Innovation policy documents	Associated objectives
National Research and Innovation Strategy (July 2009)	<ul style="list-style-type: none"> to get an overview of research and innovation challenges and to establish priorities in order to optimise allocation of public funding
Law of Modernisation of the Economy (2008)	<ul style="list-style-type: none"> to ease business creation to develop competition to reinforce territory attractiveness to improve funding of the economy
Lisbon Strategy for Growth and Jobs, France National Reform Programme 2008-2010 (October 2008)	<ul style="list-style-type: none"> to shift the technological frontier by strengthening the innovation capacity

2.2 Innovation governance system

2.2.1 Governmental bodies

Two main ministries share the responsibility for research and innovation policy in France: the Ministry of Higher Education and Research⁽³³⁾ and the Ministry for Economy, Industry and Employment. Both ministries were reorganised in the last few years, assigning two directorates a firm mandate on innovation issues. After various reforms since 2000 aiming at simplifying the governance of Research and Innovation, ministries are now in charge of the orientation function of the policy whereas agencies are in charge of the programming function (Cf. 2.2.2).

Within the Ministry for Economy, Industry and Employment, a new Directorate-General for Competitiveness, for Industry and Services (DG CIS) was set up in January 2009⁽³⁴⁾. DG CIS is a merger between three former directorates, amongst which the Directorate-General for Enterprise (DG E) that was mainly in charge of innovation. DG CIS accounts for approximately 750 civil servants at the central level (Ministry) and 500 at the regional level (representatives of ministries in regions)⁽³⁵⁾. The DG CIS mission is to develop the competitiveness and growth of industry and service enterprises. It will support the development of new sectors such as service to enterprises, support to innovation and support to economic conversion towards better growth and jobs. The DG CIS is concerned with benchmarking in order to learn from best foreign policy practises. It has four services: (a) information and communication technologies (ICTs); (b) industry; (c) tourism, commerce, arts and crafts and service; (d) competitiveness and SME development. In 2009, the DG CIS intervention credit amounted to EUR 1 billion.

Within the Ministry of Higher Education and Research, a specific directorate is also dealing exclusively with innovation. The Directorate-General for Research and Innovation (DG RI)⁽⁹⁾ is responsible for the consistency of the French research and innovation system. The DG RI consists of three main services: (a) strategy for research and innovation; (b) performance, financing and contracts with PROs; (c) enterprises, technology transfer and regional action.

The DG RI acts as secretariat for the High Council for Science and Technology (HCST), the consultative body responsible for advising the government in the area of research and technological development.

Other ministries that play a role in the system are technical ministries such as the Ministry of the Ecology, Energy, Sustainable Development and Sea. These ministries supervise agencies within their field and provide funding for R&D to research organisations or enterprises through calls.

³³ See <http://www.enseignementsup-recherche.gouv.fr> online.

³⁴ Décret n° 2009-37 du 12.1.2009 relatif à la direction générale de la compétitivité, de l'industrie et des services.

³⁵ See <http://www.industrie.gouv.fr/portail/une/dgcis.html> online..

However, all funding dedicated to research and innovation is compiled in the general budget document Inter-Ministerial Mission of Research and Higher Education (MIREs). The MIREs was developed with the implementation of the LOLF (Organic Law Relating to Public Accounts 2001 to 2005). Coordination of funding within the MIREs is managed by the Ministry for Higher Education and Research. The MIREs gathers funding for the Ministry of Research and Higher Education, the Ministry for the Economy, Industry and Employment, as well as technical ministries (Defence, Culture and Communication, Ecology, Energy, Sustainable Development and Sea, Food, Agriculture and Fishing). PROs receive a global grant for 'public service duty'. PROs then allocate the funding according to their own priorities.

The role of stakeholders (employer/industry associations, etc.), is likely as important in France as in other countries, yet difficult to measure and assess. Councils and advisory bodies do include individuals from French multinational companies and unions, but their role and influence in the final decision making process is not apparent.

With the financial crisis, the presidency decided to create a Ministry for Recovery⁽³⁶⁾. Its mission is to monitor and manage the recovery plan launched in early 2009. It manages 1 000 investment projects that are supposed to boost the French economy with a countercyclical effect. There is no indication on how long the ministry will be in operation. A strong online presence has been created to track the level of achievement of the selected projects with a scoreboard. The parliament voted a EUR 26 billion credit to spend on the recovery plan (Cf.1.1.1).

2.2.2 Main bodies managing implementation of policies

The political willingness to clarify the policymaking in RDI in France, the programming function of research and innovation policy, formerly in the hands of the ministries, now rests on the agencies. These agencies have either been created or wholly reorganised these last years. Agencies have now increased their funding capacities. Two main agencies deal with innovation: the ANR and OSEO Innovation.

ANR is the funding agency for research. It was created in 2005 and changed status in 2007. It accounted for approximately 80 full-time employees in 2008 almost equally divided between staff with administrative and scientific competences⁽³⁷⁾. The ANR was created with the aim to spur the French research and innovation system to:

- develop new concepts with the so-called "white programmes" (*programmes blancs*) the content of which is decided by the scientific community. These are non-thematic calls aimed at giving major impetus to ambitious and internationally competitive projects;
- increase research on economic and social priorities through thematic calls for projects;
- intensify collaboration between public and private research by promoting collaborative research⁽³⁸⁾;
- intensify international partnerships.

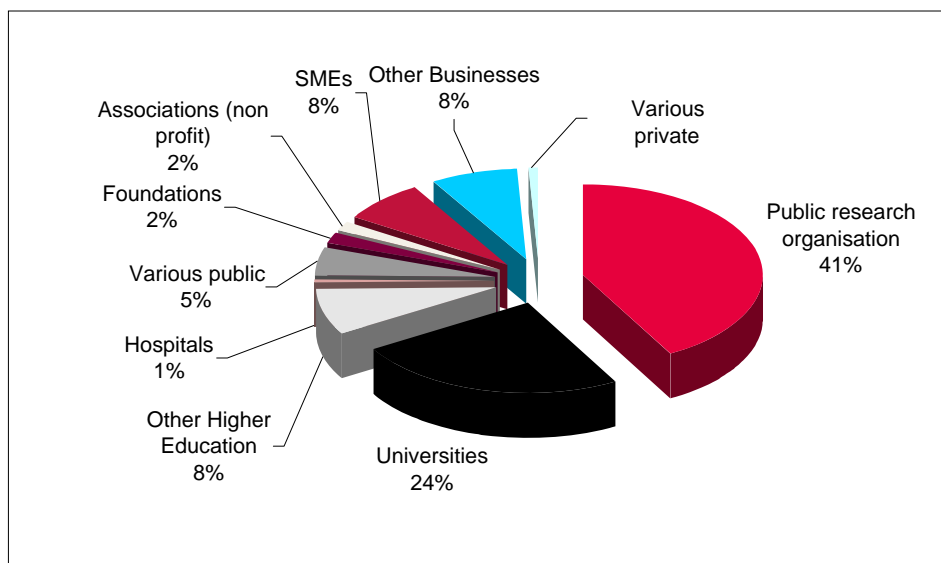
ANR beneficiaries are first and foremost PROs (24 % of the CNRS) (Cf. Graph 1).

³⁶ See <http://www.relance.gouv.fr> online.

³⁷ ANR 2009, Rapport d'activité 2008.

³⁸ Synergies have also been sought with the competitiveness clusters policy since each cluster has an ANR correspondent and a direct consultation of Clusters directors in order to set up the programme of calls for 2007.

Graph 1: ANR call for projects 2005 to 2008: type of beneficiaries



Source: ANR 2009 and author calculus.

The support for innovation directed at SMEs is mainly provided by the OSEO Group, and specifically OSEO Innovation (subsidiary of the OSEO Group). OSEO Innovation has approximately 450 employees at its headquarters and in regional nodes.

After substantial restructuring in 2006, the OSEO Group is now handling increased responsibility as the main public operator for innovation. The OSEO Group now has a portfolio of three types of activities: OSEO Innovation, OSEO Financing and OSEO Guarantee. The OSEO is mainly funded by the state, followed by the regions and to a lesser extent by the European Union.

Government funding of OSEO Innovation increased almost twofold between 2005 and 2006 (from EUR 76.7 million to EUR 120 million), reflecting the high priority of innovation issues for SMEs. The OSEO's innovation philosophy is also evolving. The OSEO now intends to encompass a broader scope of innovation (and not strictly technological innovation) and also plans to cover enterprises that are more mature in order to provide a more fluid offer to different type of enterprises, from creation to maturity. Therefore the OSEO is also providing support to companies with up to 5 000 employees, which is far from the European SME scope but is rather in line with the need to boost the growth of innovative SMEs. The main actions the OSEO is managing are support to business creation, support to innovative projects, technology transfer and collaborative research.

Other operators worth mentioning as they play key roles:

- CDC Enterprises is a subsidiary of the CDC (Caisse des Dépôts) which has the status of a public funding institution and manages the France Investment programme (FR 76);
- ADEME targets companies as well as local and regional authorities, administrations and individuals. ADEME has 820 employees (including 359 engineers) and its 2009 budget amounted to EUR 638 million. ADEME, amongst other duties, funds research projects in the field of energy and environment;
- regional authorities also implement their own support measures. Budget and priorities differ from one region to the other.

2.3 Public funding to innovation

2.3.1 Review of the current range of support measures for innovation

The following sections discuss the policy fact sheets (see Annex). The fact sheet is an analysis of the TrendChart-ERAWATCH⁽³⁹⁾ policy measures database. The fact sheet reflects most but not all of the measures implemented by public actors in France. The database distinguishes between five main categories of support measures:

1. governance & horizontal research and innovation policies: support to policymaking - policy intelligence, research and innovation strategies (policy development at high level, i.e. priorities/regulatory), and horizontal programmes/measures;
2. research & technologies: direct state aid measures in support of (business) research, science-Industry linkages, policy measures concerning excellence, relevance and management of research;
3. human resources: education and skills;
4. promote and sustain the creation and growth of innovative enterprises;
5. markets and innovation culture.

The fact sheet for France presented in the Annex shows that most measures included in the repository fall in the category research & technologies, which covers programmes supporting improved excellence, relevance and management of research in knowledge institutions, science-industry linkages and direct state aid measures in support of (business) research. The following sections discuss the fact sheets by main category. The most important category being the research and technologies category.

1. Governance and horizontal research and innovation policy

Among the support measures introduced in France, the issues dealing with governance and horizontal innovation policy are moderately tackled. These themes are apparently taken less into account in France than in the EU-27. Only two kinds of priorities are more specifically addressed in French support measures compared with the EU-27, namely the ones related to the strategic research policies (long-term research agenda) and above all the cluster framework policies. Indeed, in the last few years, research and innovation hold a more significant position in the policy agenda than it had in the past. Even if strategic exercises in the innovation field are less developed in France than in some other EU countries, the UK for instance, efforts have been made lately with the launching of the National Research and Innovation Strategy in 2009. France also has particular concern over cluster policy and since 2004 the French government has strongly supported the setting up of Competitiveness clusters.

2. Research and technologies category

Most of the support measures in the TrendChart/ERAWATCH repository which fall under the field of research and innovation are related to the research and technologies policy priorities. Compared with the EU-27, French support measures addressed in a more important way priorities such as indirect support to business R&D, in particular the research tax credit (CIR – FR 109) as well as direct support of business R&D with the Company Competitiveness Fund (Fonds de Compétitivité des Entreprises - FCE) for example, or the increased funding provided by the OSEO. Significant efforts have also been made towards direct support for business R&D (in terms of grants and loans) and all the more towards R&D cooperation (joint projects, purchasing power parity with research institutes).

³⁹ See <http://cordis.europa.eu/erawatch/> online.

3. Human Resources

Among the priorities addressed, the third category of support measures holds an intermediate position in France according to the fact sheets (see Annex 1). In this category, emphasis is placed first on measures related to recruitment of researchers (joint projects, partnerships with research institutes), then on mobility of researchers and to a lesser extent to stimulation of PhDs. In these three fields, France is above the EU average. This is in line with the EIS indicators presented in the previous section.

On the other hand, the range of measures dealing with issues such as job training of researchers and other personnel involved in innovation, recruitment of skilled personnel in enterprises or career development for university researchers, are less focused on in France than in other EU countries according to the fact sheets.

Regarding human resources, France made special efforts, as many programmes at different levels and tackling different targets have been developed in order to increase researchers' mobility (to foster mobility abroad for national researchers and to facilitate foreign researchers' mobility in France). However, less emphasis has been placed on reforms enhancing the attractiveness of research careers. Besides, the unattractiveness of career prospects for researchers may discourage exceptional students in choosing a scientific career and thus weaken the human resource basis.

4. Promote and sustain the creation and growth of innovative enterprises

Taking into account the TrendChart/ERAWATCH fact sheets, this category of support measure maintains a rather solid position amongst the French priorities tackled. The policy priorities most taken into account within the range of French support measures and as compared to the EU-27 are those related to the support to innovative start-ups, to risk capital and to organisational innovation (e-business, new form of work organisations). On the other hand, support to technology transfer between firms, to sectoral innovation in manufacturing or to innovation in services seems to be set aside.

In view of the growing number of support measures, the support to the creation and growth of innovative companies has indeed become a priority. Among the most significant and representative measures implemented and specifically dedicated to the creation and growth of innovative enterprises are:

- the national competition for creation of new technology-based firms (FR 11);
- the young innovative enterprises status (FR 73) with the objective to help young innovative firms to overcome the difficult first years of existence by extending tax credits in favour of R&D investment;
- the incubators (FR 12) aimed at enhancing the private use and commercialisation of the public research outcomes by supporting the creation of start-ups. The business incubators_measure is aimed at promoting the creation of innovative firms based on the results of public research or in conjunction with public research;
- the CIR (FR 109), another important means of promoting the establishment of new indigenous R&D performing firms;
- the SME pact (FR 63) which aims at easing the development of the best innovative SMEs by reinforcing the relations amongst innovative SMEs and large companies and organisations through commercial contracts or R&D collaboration for instance;
- France Investment (FR 76), aimed at easing the financing of potentially fast-growing SMEs. As mentioned in the previous TrendChart progress report (2008), the final objective of this scheme is to invest EUR 3 billion over the period from 2007 to 2012. A total of 102 enterprises had already benefited from this money by the beginning of 2008. As of 31 December 2007, the private partners were committed to EUR 230 million while Caisse des Dépôts had agreed to invest EUR 587 million, i.e. a total of EUR 817 million (NRP);
- the Participatory Priming Loan (Prêt Participatif à l'Amorçage – PPA – FR 69) provides SMEs with funding at the early stage phase of innovation projects;

- the new Strategic investment funds help promising SMEs to obtain financing and to secure capital.

5. Market and innovation culture

The less developed category of support measures lies in the market and innovation culture domain. However, France seems to exceed the EU-27 level for three kinds of measures, mainly for those concerning consultancy and financial incentives to the use of IPR, the support to the innovative use of standards, and to a lesser extent incentives to raise awareness and provide general information on IPR.

Indeed, with respect to the intellectual property issue, France's performance is quite stable. The number of French patents published by the EPO remained almost unchanged and have struggled since 2004. According to the EIS 2008, the growth of EPO patents was only 0,1% in five years. Nevertheless, it is worth noting that patents registered in France increased slightly by 2,7 % between 2007 and 2008. As for international patents registration, after a long period that started in 2000 while French registrations had doubled, a downward trend has begun with a slight decrease of 0.9 % between 2007 and 2008.

Recent changes regarding public support to innovation

The policy instruments used to support R&D from the private sector have consistently evolved over last few years with the implementation of the Competitiveness clusters (FR 100) and the strengthening of the research tax credit (FR 109). From now on, the focus is on the support to innovative SMEs, and the improvement of partnerships between public research and enterprises.

Main policy priorities addressed

One of the most important weaknesses that French policies are trying to overcome are the lack of synergies between public and private research, the issues related to knowledge transfer and R&D cooperation. Over the past years more efforts have been made to bridge the gap between the public research actors and the industrial actors. In France, most of the efforts have been focused on the competitiveness cluster policy (FR 119), accounting for more than 30 % of the budget dedicated to innovation policy priorities identified in the fact sheets. This instrument allows industry and public research institutions to identify collective innovating projects.

In addition to the Competitiveness clusters policy, other instruments aimed at intensifying the dissemination of knowledge, hold a significant position within the French innovation policy priorities. It is the case of the Carnot institutes (FR 92) prompting public research entities to develop partnership-based research, the Innovation Strategique Industrielle (ISI – FR 118) at the beginning of 2008. Concerning the Carnot Institutes, with a 22 % increase in two years, the private contracts of all the Carnot Institutes have reached EUR 200 million and therefore tap 30 % of the expenses made by businesses towards public research institutions (⁴⁰).

However, the promotion and support of the creation and growth of innovative enterprises has become a high priority in France over the past few years as evidenced by the budget allocation reflected in the TrendChart/ERAWATCH fact sheets, which represent 20 % of the estimated annual budget dedicated to innovation policies, and also with regards to the enhanced role and budget of OSEO Innovation. The main objective of the latter is to provide support to SMEs throughout their lifespan, from creation to development stages. The TrendChart/ERAWATCH fact sheets do not properly reflect the overall increase in the OSEO's budget since only some of the OSEO's measures are registered in the policy measure database.

Sectors and technology fields targeted

In France, the instruments implemented to support innovation and research are rather horizontal than targeted to a particular field. However, it is interesting to note that the fields most covered by

⁴⁰ Projet SNRI – Working document.

measures registered in the fact sheets are in connection to environment, ICT, health, and space. Nevertheless, a change is probably emerging insofar as the first edition of the National Research and Innovation Strategy (2009) has clearly worked out three research and innovation domains considered of utmost importance. They are related to: (a) health, well being, feeding and biotechnologies; (b) environment and eco-technologies; (c) ICT and nanotechnologies.

Targeted groups of support measures

Within the range of French instruments implemented in favour of research and innovation, the higher education institutions and research units/centres represent the first target groups of support measures (44 % of the total number of measures), followed by companies as a whole (40 %), then researchers as individuals (38 %), SMEs (merely 36 %) according to the TrendChart/ERAWATCH fact sheet. To a lesser extent, but higher than in other EU countries, the target groups taken into account through support measures are also technology and innovation centres (27 %) and other non-profit research organisations (24 %). In comparison with the rest of EU-27, French researchers, SMEs, technology and innovation centres as well as higher education institutions are more often targeted by support measures than other actors.

Aspects of innovation process

Through the range of existing support measures, some specific aspects of innovation processes seem to be addressed more in France than in other EU-27 countries. This is especially the case with innovation processes related to development and prototype creation, to commercialisation of innovation, to industrial design and to the raising of awareness amongst firms in the field of innovation.

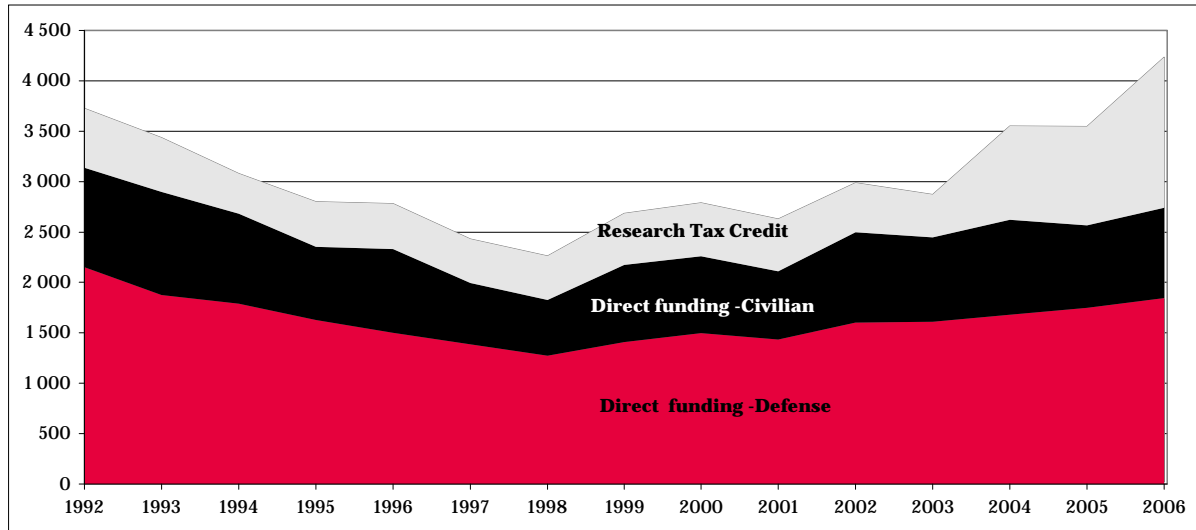
Forms and sources of funding of support measures

Undoubtedly, grants represent by far the first instrument for the financing of support measures in France (60 % of total number of measures) but remain less used than in the EU-27 (72 %). With regards to the direct support to business R&D, a number of grant schemes have been settled in order to directly support R&D with a general view to increasing innovation and competitiveness. It is noteworthy to mention the inter-ministerial fund Company Competitiveness Fund (Fonds de Compétitivité des Entreprises (FCE) which collects credit from different ministries. These funds support Competitiveness clusters and industrial R&D. Within the FCE, the Single Interministerial Funds (FUI) finances R&D projects within the Competitiveness clusters through calls for projects. The FUI amounts to EUR 720 million for the period from 2006 to 2008. Some other grants are targeted at SMEs and largely provided by OSEO Innovation, among which are support to innovative projects, support for technology transfer, support to the recruitment for innovation, support to industrial strategic projects (ISI), the Innovation Development Contract and the Participatory Priming Loan

On the other hand, the use of tax incentives schemes aimed at improving the environment for R&D expenditure have become over the last few years one of the most important instruments of the French innovation policy. Today they represent the financing means used by more than 15 % of support measures against only 6 % for the EU-27. This situation is partly due to the importance given to such measures as CIR (FR 109) or young innovative enterprises status. The JEI status (FR 73) represents approximately EUR 100 million⁽⁴¹⁾. The CIR, which has been modified and expanded several times since the 1980s, represented 40 % of funding allocated to enterprises in 2006, amounting to EUR 1.495 billion (Cf. Graph 2) according to statistical data from the Ministry of Higher Education and Research. The CIR share kept growing in 2007 and 2008, with EUR 1.6 billion and EUR 3 billion respectively. It will continue to grow in 2009.

⁴¹ Projet SNRI, Document de travail, mars 2009, Défis transverses du système de recherche et d'innovation, Ecosystème de l'innovation.

Graph 2: R&D public funding for enterprises in France 1992 to 2006



Source: Ministry of Higher Education and Research (DEPP et DGRI B1).

At national level, the less represented forms of funding are guarantees, venture capital and subsidised loans. However, their share within the complete range of French support measures is slightly higher than in the EU-27, and measures regarding support to risk capital account for approximately 10 % of the estimated annual budget dedicated to innovation policies.

Table 1: Key information regarding the evolution of public funding to R&D

- A new increase in competitive funding distributed by ANR. In 2008 the overall budget of the National Agency for Research reached EUR 839 million. The majority of funding (79 % or EUR 665 million) was dispensed through calls for project proposals.
- The increase in the funding of the CIR, the cost for which has increased from EUR 1.6 billion in 2007 to EUR 3 billion in 2008.
- The increase in the funding of OSEO Innovation. Indeed, for the OSEO, 2008 was a year of record, Altogether, OSEO supported more than 70 000 enterprises and granted EUR 773 m (OSEO, Annual Report 2008),
- The strengthening of the competitiveness cluster policy with the launch of the second phase of the policy for a further three-year period (2009 to 2011) with a total budget of EUR 1.5 billion.

In France, the private sector is the first source of co-financing of support measures, accounting for 40 % of the share of measures which is more than the EU-27 (33 %). The share of measures co-financed by the Structural Funds (ERDF, ESF, etc.) are second, reaching 31 % (see fact sheets) which is above the EU-27 level. In 2006, the inflows of funds from the European Union accounted for 19 % of the total funds from abroad ⁽⁴²⁾. In particular, France received nearly 13 % of the Sixth Framework Programme (FP6) budget and distributed as follows: (a) 79 % for agriculture; (b) 18 % for cohesion (region); (c) 2,5% for education, training, research and European networks, amongst others ⁽⁴³⁾.

For 2007 to 2013, the cohesion funds distribution accounts for EUR 12.7 million ⁽⁴⁴⁾ and are allocated as follows: (a) EUR10.2 million (72 %) to the Competitiveness and employment objective; (b) EUR 3.2

⁴² Ministry in charge of research – DEPP.

⁴³ FutuRIS.

⁴⁴ State's Financial commitment (CPER 2007-2013-State/Regions projects contracts), MESR.

million (22 %) to the convergence objective; (c) EUR 872 million (6 %) to the territorial cooperation objective.

Nowadays, the earmarking rate of ERDF funds for French regions is estimated at 72 % for the period from 2007 to 2013. There is no evidence of significant non-financial measures in favour of innovation in France.

2.3.2 New or modified support measures

Hardly any new measures have been adopted recently, and most of the changes laid in the deepening, renewal or slight modifications of existing measures. This is a conscious political choice aimed at reversing the French trend of lack of coherence, proliferation and redundancy of instruments.

Exhibit 6: New Innovation Policy Support Measures (since the last report)

IPM N°	Title	Innovation policy framework category	Organisation responsible
FR_109	Research tax credit	2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes) 2.3.2 Indirect support to business R&D (tax incentives and guarantees) 3.2.1 Recruitment of researchers (e.g. fiscal incentives) 5.3.2 Consultancy and financial incentives to the use of IPR	Ministry Delegate of Higher Education and Research
FR_119	Competitiveness clusters policy 2.0	1.3.1 Cluster framework policies 5.3.2 Consultancy and financial incentives to the use of IPR 5.3.3 Support to the innovative use of standards	The inter-ministerial working group (GTI), headed jointly by the Inter-ministerial Agency for Spatial Planning and Competitiveness (DIACT) and the Ministry for the Economy, Industry and Employment (Directorate-General for Enterprise)
-	Strategic Investment Funds	4.3.2 Support to risk capital	Caisse des Dépôts et Consignations (CDC) State

The main changes which have occurred lately are laid out in the reform of the research tax credit, the launching of the second phase of the competitiveness cluster policy and the very recent implementation of the Strategic Investment Funds in the context of the overall recovery plan.

The Research Tax Credit (FR 109)

After the evaluation of the research tax credit carried out in 2006, it was concluded that even if the CIR has an impact on private R&D expenditures, the measure could be improved and simplified especially. As a consequence, the budget act for 2008 radically simplified the mechanism by abolishing the fraction calculated over the spending increase and significantly raising the tax credit rate applied to the spending volume from 30 % of R&D expenditure up to EUR 100 million (50 % for the first year and 40 % for the second). Beyond that amount, businesses are eligible for a 5 % tax credit without a cap.

Since January 2009, companies can obtain an immediate refund of their CIR not yet used or mobilised in 2005, 2006, 2007 and 2008. Example of the benefit of the reform for French businesses can be found in the automotive sector that will welcome a significant rise of their benefits through the CIR⁽⁴⁵⁾. The CIR reform will permit the amount received in tax breaks to be multiplied by 2.6 (considering the hypothesis of stable R&D expenditures in firms). This will represent EUR 273 million for the reform compared to EUR 104 million in 2007.

The competitiveness cluster policy (FR 119)

The competitiveness cluster policy was also evaluated in 2008: 39 clusters fully reached the policy objectives, 19 clusters partially reached them but should devote more efforts in strategy definition and governance, and 13 clusters would benefit from an in-depth restructuring. On the basis of these rather positive results, the government decided to launch a second phase of the competitiveness cluster policy (Cluster 2.0) for an additional three-year period (2009 to 2011), with a total budget of EUR 1.5 billion intended to widen the scope of the Competitiveness clusters' activities.

The Strategic Investment Funds (FSI)⁽⁴⁶⁾

The implementation in 2008 of this new fund was part of a government response to the financial crisis. The strategic investment funds (FSI) were created to support the growth of promising SMEs, to obtain financing and to secure their capital. The FSI is a public company involved in equity capital in order to obtain minority interests in French companies carrying out industrial projects which create economic benefits and competitiveness. The aim is clearly to support sustainable companies with promising projects and to bring funds for innovative and enterprising industrial projects. Its capital is held by the Caisse des Dépôts et Consignations (CDC) at 51 % and by the state at 49 %. At the time of its creation, this new fund was allocated EUR 6 billion. Before the end of 2009, its endowment should increase to EUR 20 billion. In a context of the scarcity of new investments in equity capital within innovative companies, the FSI has recently decided (June 2009) to reinforce its actions in favour of biotech companies in order to support this strategic economic sector. Indeed, the FSI supports the creation of a new fund dedicated to biotechnologies, and will directly invest in some biotech enterprises. Moreover, the FSI is bringing an additional EUR 75 million in funds dedicated to biotechnologies in the framework of the France Investment.

2.3.3 Strengths and weaknesses in the innovation policy support system

The French strength in the innovation policy support system is the overall good coverage (except for the market and innovation culture category of measures). There is no doubt that the political willingness to increase resources for R&D is stronger today in France. In actual fact, the emphasis has been placed on the need to increase private R&D by the reinforcement of the innovative behaviour of companies, especially SMEs, and a large set of measures have been taken in order to boost R&D private investment and to favour cooperation between public and private research. In this respect, it seems that the objectives and priorities of the support measures implemented over the last few years are in line overall with the challenges faced by France.

However, a risk of redundancy of instruments is worth considering insofar as the range of instruments remains quite complex and sometimes adds to existing mechanisms. Thus, in terms of governance, the FutuRIS 2008 report raised concerns about the insufficient articulation of instruments between each other, which is a challenge the government will have to tackle in the future. This is particularly the case regarding the support to risk capital, for instance. According to the report on innovation released by RETIS, the funding of innovation remains too complex. Generally speaking, and according to the APCE (Business Creation Agency), innovation support measures and structures towards innovative projects are too numerous. The fact that innovation support measures have been rather strengthened and new ones have been added can be seen as a positive sign.

⁴⁵ TRÉSOR-ÉCO – n° 43 – Septembre 2008 – p.8.

⁴⁶ FSI : (<http://www.fonds-fsi.fr/>).

3. Innovation policy and competitiveness: an appraisal

3.1 The ability of policy to address challenges

National innovation policies set priorities based on perceived challenges while are often motivated by international agreements and commitments, i.e. the Lisbon Agenda. Therefore, national policies act and react in a complex set of overall policy priorities and commitments. This section builds on the analysis in the previous chapters and investigates how well national innovation policies identify and respond to systemic challenges, which may or may not be common in other EU Member States or even other countries outside the EU.

3.1.1 How well does policy respond to innovation challenges?

The systemic challenges identified in Chapter 1 are to increase business R&D investment, to improve technology transfer from research to innovation, and to foster innovative SME growth.

Challenge 1: Increase business R&D investment

This first challenge has been taken very seriously into consideration by the French government through two main instruments: the CIR (FR 109) and the Strategic Investment Fund. These tools allow for spending a couple billion euro per year to spur R&D spending by the private sector.

And the reform of the research tax credit in 2008 and 2009 consisted of the simplification of the mechanism by abolishing the fraction calculated over the spending increase and significantly raising the tax credit rate applied to the spending volume. The overall public spending in tax breaks for the research tax credit will increase from EUR 1.4 billion to EUR 3.6 billion after the reform.

The Strategic Investment Fund has recently been implemented to support the growth of promising SMEs, to obtain financing and to secure their capital. It aims at supporting sustainable companies with promising projects and to bring funds for innovative and enterprising industrial projects. It has been created to tackle the issue of scarcity of new investments in equity capital within innovative companies. Initially, this new fund was allocated EUR 6 million. Before the end of 2009, its endowment should increase to EUR 20 million. The first investments of this new fund have been allocated to the automotive sector (i.e. Valeo, Daher).

Challenge 2: Improve transfer from research to innovation

The second challenge is more difficult to confront by the French government as the public leverage is more to be found in the structural reforms of PROs rather than in additional funding. All the more, many measures have already been engaged in the 2006 law for research.

To tackle the issue of improving transfer from research to innovation, the government has recently launch the second phase of the competitiveness cluster policy (FR 62) for an additional three-year period (2009 to 2011) with a total budget of EUR1.5 billion. Most of this amount will be earmarked for R&D projects, and channelled through the Single Inter-ministerial Fund for competitive clusters. This measure clearly shows the French willingness to overcome the lack of synergies between public and private research and to deal with the issues related to knowledge transfer and R&D cooperation. In addition to the Competitiveness clusters policy, the extension of the Carnot label further represents the eagerness to intensify the dissemination of knowledge. Indeed, the Carnot Label aims at developing partnership-based research. This is clearly an accurate picture of the French perspective, which is traditionally characterised by a rather weak RDI system, and in particular by a lack of interaction between public and private sectors.

Moreover, synergies between public and private research are also supported through the thematic calls for proposals launched by the ANR. Since 2004, the CIR has also included a specific incentive to R&D subcontracting towards public research institutions. At last, CIFRE conventions (FR 98) are additional instruments implemented in order to improve mutual access between public and private research⁽⁴⁷⁾.

Despite many efforts and the implementation of a wide range of support measures, research valorisation and dissemination seem to be a difficult objective to reach. Most of the problems are due to the splintering of responsibilities in terms of valorisation and in particular to the dispersion of the various valorisation units. This difficulty is linked to PROs and their very recent interest in valorisation. According to RETIS⁽⁴⁸⁾, the partnerships and the links between the public and the private sector are still too weak and behaviours are slow to change. It now seems essential to make research valorisation more professional.

Challenge 3: Foster innovative SME growth through better funding

The scarcity of new investments in equity capital within innovative companies, and all the more during a financial crisis, the improvement of innovative projects financing is of paramount importance. In France the main issue lies in the lack of seed and venture capital investments during priming and creation stages. The funding at the early stage of innovation projects is hard to obtain. Moreover, SMEs in general are reluctant to resort to private investors. According to the report on innovation released by RETIS, the funding of innovation remains too complex, quite inappropriate and would need to be more understandable, therefore simplified. According to the National Research and Innovation Strategy⁽⁴⁹⁾, the French risk capital business model today is not able to generate capital in the long run. As a consequence, the strategy recommends reinforcing the funding channels for start-ups and stimulating partnerships between big companies and start-ups that could lead to buyouts.

The need to foster innovative SME growth has been tackled by French innovation actors in two main ways: the increased funding dedicated to the OSEO and the creation of France Investment. In 2008, the OSEO financed about 70 000 enterprises and allocated EUR 733 million to support enterprises. The OSEO Guarantee has provided EUR 3.3 billion in bank guarantees for a total of EUR 7 billion of bank loans. Co-financing of investments with banks have also reach EUR 2 billion (+9 %).

France Investment (FR 76) aims to ease the financing of potentially fast-growing SMEs, and has planned to invest EUR 3 billion during the period from 2007 to 2012. A total of 102 enterprises had already benefited from this money at the beginning of 2008. As of 31 December 2007, the private partners committed to EUR 230 million while Caisse des Dépôts had agreed to invest EUR 587 million, i.e. a total of EUR 817 million (NRP).

3.2 Effectiveness of policy design

The overall structure for RDI policy design and implementation has been streamlined in the 2000s, and accelerated in the mid-2000s. This institutional reform was combined with a budgetary reform and state modernisation. The reforms aimed at clarifying the division of labour and responsibilities in the RDI governance system. As described in Section 2.2, the national policy structure was modified in order for the system to correspond to the three functions:

- the orientation function, handled by the government/ministries;
- the programming function, handled by various intermediate organisations and funding agencies;

⁴⁷ National Research and Innovation Strategy, Working Document.

⁴⁸ RETIS, Livre Blanc, 10 propositions pour favoriser l'innovation en France.

⁴⁹ National Research and Innovation Strategy, Working Document.

- the implementation of research per se handled by research organisms, universities and their laboratories.

Although much effort was undertaken, numerous weaknesses have been identified with regards to the effectiveness of policy design. The main weaknesses deal with: (a) the availability of information about the innovation system and its evolution, (a) the use of available information to make the right policy choices; (c) the ability to prioritise between choices.

Availability of information about the innovation ecosystem

Information about the innovation system (actors and production) is to be found either in statistics provided by statistical offices (e.g. OST ⁽⁵⁰⁾) or through monitoring or evaluation studies. The working group on the Innovation Ecosystem within the National Strategy for Research and Innovation deplored the lack of common specialisation indicators that would measure R&D activity, from the production of knowledge to the use of knowledge. These indicators are necessary to monitor and provide an accurate picture of the system and its failures in order to establish more accurate decisions.

A senate report from June 2008 ⁽⁵¹⁾, as well as an appraisal by the National Strategy for Research and Innovation, pinpointed the lack of evaluation of the French innovation policy. According to the working group, France requires an enhanced and more regular evaluation of its innovation support measures.

Some key instruments of the innovation policy have been evaluated recently, such as the young innovative company support scheme (FR 58) and the competitiveness cluster policy (FR 100), while others are being evaluated. However, there are other measures that have not been evaluated in more than ten years or never evaluated at all. For instance, the OSEO, which is now the main vehicle to support SMEs in France and more specifically innovative SMEs, has not been subject to external evaluation since 2001 ⁽⁵²⁾. Another example is the national competition for technology-based firms that started in 1999 and is currently being evaluated both qualitatively and quantitatively for the first time in ten years. The lack of homogeneous information lead to an incapacity by decision makers to assess the effectiveness of the French policy mix.

Use of strategic intelligence tools by innovation actors

France has produced numerous strategic intelligence exercises aimed at orientating and feeding the research and innovation policy. Amongst these exercises, several foresight activities of different scope have been undertaken and completed these last years. The exercises are mostly ad hoc. Some exercises are wide-ranging, such as the France horizon 2025 ⁽⁵³⁾ by the Conseil d'Analyse Stratégique, or more specialised and focused on the innovation ecosystem, such as the private think tank Futuris ⁽⁵⁴⁾.

The 2008 senate report studied the use by public actors for another exercise, the Key technologies ⁽⁵⁵⁾. Key technologies is a foresight study that has been carried out every five years since 1995 and aimed at identifying the key technologies that will contribute to France's greater competitiveness and attractiveness. The Key technologies exercise aims at being a support tool for public authorities, of which include economic development local actors and innovation support actors. Experts from the private and public sector have defined a set of 83 technologies. The exercise is intended to be used as a reference, and to contribute in supporting decision making for better use of public funding.

According to the senate report, it seems that this exercise is not used as a common reference by PROs. To support such a claim, a survey directed at these PROs revealed they did not declare

⁵⁰ Observatoire des Sciences et Techniques (<http://www.obs-ost.fr>).

⁵¹ Kergueris J., Saunier C., (2009), la stratégie de recherche et d'innovation en France, Rapport d'information du Sénat n°392.

⁵² Technopolis Group, 2001, Evaluation de la procédure d'aide au projet d'innovation de l'ANVAR 1993 – 1999.

⁵³ See <http://www.strategie.gouv.fr> online.

⁵⁴ See <http://www.anrt.asso.fr/futuris/accueil.jsp> online.

⁵⁵ See <http://www.expertises2010.com> online.

covering the same technologies as those indicated in the key technology exercise. This reveals both a lack of knowledge about which actors are working on which technology in France and a lack of homogeneity in the use of strategic tools that are meant to support decision making.

Capacity to prioritise

Another weakness identified is the low capacity of France to decide over priorities and ensure a coherent programming in research and innovation. Indeed, until the development of the National Strategy for Research and Innovation in mid-2009, France had not had one single document explaining its strategy and selecting national priorities. The sources for programming public funding are coming from various means and therefore the overall funding is difficult to direct. In actual fact, even though the selection of research and innovation themes now rests with the ministries, the programming of funding is still defined at PROs level rather than national agencies (ANR). Each PRO has its own single strategy and priority document based on a diagnosis and foresight exercise.

Another problem faced by France is that even though some thematic priorities have been chosen, the results in terms of funding allocation were not convincing. For instance, it appeared that for the ICT sector, France has less concentrated public funding than other countries, although it was declared as a national priority. The share of R&D for ICT on GDP was 0,4 % in France in 2005 (same level as in 1999) compared to 0.93 for Japan, 1.23 % for Korea and 0.60 % for the USA ⁽⁵⁶⁾.

However, the National Strategy for Research and Innovation was launched in November 2008 with the objective to provide France with a national strategy as those developed by other countries (Germany, Japan or the UK). The operation is to be renewed every four years. The whole process is made up of four steps: (a) definition of the challenges to be debated; (b) analysis of challenges by working groups and production of reports; (c) public consultation; (d) production of a strategic document. The process lasted six months and involved 600 actors from public and private research, economic stakeholders and civil society representatives. Even though some actors feared that the exercise would not end up with a clear selection of priorities, the Minister for Higher Education and Research has finally decided on three (Cf. 2.1).

Table 2: Strategic analysis of the innovation ecosystem

<ol style="list-style-type: none"> 1. Improve knowledge of innovation processes and impact of public policies: <ol style="list-style-type: none"> (a) strengthen intelligence about the innovation ecosystem (indicators and data), (b) increase the evaluation capacity of innovation policies; 2. Reinforce RDI operators: <ol style="list-style-type: none"> (a) strengthen horizontal/ generic support to innovation, (b) strengthen new innovative businesses; 3. Develop infrastructures for open innovation: <ol style="list-style-type: none"> (a) professionalise research commercialisation, (b) increase researchers mobility, (c) decrease the transaction cost for exchanges of technologies; 4. Foster the demand aspect of innovation 5. Strengthen connections to global innovation networks

Source: 2009 National strategy for Research and Innovation, Innovation, Working document.

3.2.1 Process of delivery

The process of implementation/delivery of innovation policy in France is undergoing a process of clarification and simplification. Agencies are supposed to programme and deliver funding decided by ministries. As a matter of fact, agencies do play a greater role in delivering measures.

One example is the ANR. It develops thematic programmes and calls for projects. ANR staff increased from approximately 60 to 80 full-time employees between 2007 and 2008. In theory, the

⁵⁶ Cour des comptes, (2007), La recherche en faveur des sciences et technologies de l'information et de la communication.

ANR has been given a greater role. However, on the one hand funding through competitive calls still remains a minor part of overall research funding in France. ANR funding accounted for 6.6 % of overall public funding in 2008 (Cf. Table 3). On the other hand, the ANR mostly funds public operators. Less than 20 % of ANR funding was allocated to private operators and only 8 % to SMEs during the period from 2005 to 2008. The impact on innovation is therefore limited from a macroeconomic standpoint.

Table 3: Difference between project-based funding and block grants (⁵⁷)

	2006	2007	2008 (estimates)
ANR funding (A)	€106 m	€159 m	€182 m
Block grant for the functioning of laboratories (C)	€291 m	€316 m	€287 m
Research personnel income (D)	€2.290 m	€2.363 m	€2.470 m
(A+B)/(C+D)	4,1%	5,9%	6,6%

Source: MIRES 2009.

The other example is the OSEO. In 2007, the President of the Republic decided that all innovation support measures would be managed by the OSEO. The innovation support measures implemented by the Ministry for Economy, Industry and Employment and the Agency for Industrial Innovation (All) would be transferred to the OSEO. After the absorption of All by the OSEO, OSEO's budget has been dramatically increased. There are however no indicators proving that the staffing has increased as a result of the budget increase. The next step is for the OSEO to manage the Single Interministerial Funds (FUI), the funds dedicated to the Competitiveness clusters. The OSEO continues to be supervised by the ministries and allot funding according to governmental priorities. The OSEO is undeniably a government tool to help businesses in overcoming the current crisis.

The evolution of the delivery process of the French innovation policy is also reflected in an increasing number of actors at the local and regional level. Numerous actors have emerged these last 10 to 15 years, more recently the regional innovation agencies. In 2009, more than a dozen regional councils have set up regional innovation agencies amongst the 22 metropolitan regions. These agencies do not decide on how to spend regional funding, but often coordinate regional funding. Bretagne, Aquitaine, Alsace, Languedoc Roussillon, Picardie, and Rhone-Alpes have their own regional agencies. In general, these agencies develop close links with the OSEO regional representatives as well as representatives of Ministries.

Although no data measuring the number of individual working full-time on innovation issues in regional councils and regional innovation agencies exists, the tendency is clearly towards an empowerment of regions on innovation issues. Aware of this development, the General Revision for Public Policies (RGPP) (⁵⁸) currently under way has even proposed transferring national schemes in favour of technological diffusion to regional councils (except for the Carnot measure ((FR92)) and regional incubators (FR12) (⁵⁹). The RGGPP interim report published in May 2009 concerning the implementation of modernisation measures in the Ministry of Higher Education and Research indicated that this measure was not yet engaged however.

At local level, other actors do support innovative projects and businesses. These actors can be partly financed by public funding. These support actors also deliver the public policy in the sense they either orient or prescribe publicly-funded measures. Even though the development of support actors should definitely be welcomed, a drawback can be the lack of visibility of the overall system for entrepreneurs. The RETIS network (⁶⁰), the French national network of incubators, has proposed in its White Paper (⁶¹) to focus public resources on actors that have started a process of concentration over given territories.

⁵⁷ See <http://www.performance-publique.gouv.fr/farandole/2009/pap/html/DBGPGMOBJINDPGM172.htm> online.

⁵⁸ See <http://www.rgpp.modernisation.gouv.fr> online

⁵⁹ See [http://www.rgpp.modernisation.gouv.fr/index.php?id=52&tx_ttnews\[tt_news\]=427&tx_ttnews\[backPid\]=117&cHash=e4d2dd5fcd](http://www.rgpp.modernisation.gouv.fr/index.php?id=52&tx_ttnews[tt_news]=427&tx_ttnews[backPid]=117&cHash=e4d2dd5fcd) online.

⁶⁰ See <http://www.retis-innovation.fr> online.

⁶¹ Retis, Livre Blanc.

3.3 Impact of public support for innovation

The French innovation policy support system is characterised by strong public support to business R&D and to innovation in general. However, even if it is crucial to be aware of the effectiveness of policies and support measures established, France (though efforts have been made over the last few years), does not systematically use evaluations yet.

Nevertheless, evaluations or in the very least impact assessments of the most significant support measures for innovation have recently been carried out: the evaluation of Competitiveness clusters (FR 62), the young innovative company (FR 73), the impact assessment of the CIR (FR 109), as well as the ongoing evaluation of the national competition for creation of new technology-based firms (FR 11). The results of the four evaluations are presented below. The evaluations are rather positive concerning the policy impacts of the measures on beneficiaries in terms of increasing the level of R&D funding or hiring R&D human resources. However, the link to the overall economy is not calculated nor visible.

Competitiveness cluster policy (FR 62)

Today, there are 71 Competitiveness clusters divided into three types: seven global Competitiveness clusters, 10 globally-oriented Competitiveness clusters, and 54 Competitiveness clusters. In the original version of the policy, only 15 Competitiveness clusters should have been selected. Despite the fear that public funding would be spread amongst the 71 clusters, data show that funding focuses on the top clusters. Firstly, 80 % of the EUR 36 million grant for the clusters functioning costs have been attributed to world-class clusters. Secondly, and as far as ANR funding is concerned, the 17 world-class clusters managed to obtain 47 % (EUR 327 million) of the total funding during the period from 2006 to 2008. Clusters now cover various thematic areas like aeronautics, ICT, life sciences, but also more traditional sectors such as wood, construction and finance.

The competitiveness cluster policy was evaluated in 2008 ⁽⁶²⁾ at national level and at the level of each of the 71 clusters. According to the evaluation, 39 clusters fully reached the objectives of the policy, 19 clusters partially reached them but should devote more efforts in strategy definition and governance, and 13 clusters would benefit from an in-depth restructuring. Between 2005 and 2008, the number of new entries into Competitiveness clusters increased, and large firms and SMEs in particular. Actors from public research are less numerous but are usually projects leaders. In addition, partnerships between clusters and economic development operators increased as well.

This evaluation stressed that the competitiveness cluster policy triggered or accelerated a cooperation process on innovative projects in all industrial sectors. The Competitiveness clusters can be an important boost to improve the links between public and private research, and eventually strengthen the French strategic positions in the fields of research, development and innovation, and particularly abroad. On the basis of these results, the government decided to launch a second phase of the competitiveness cluster policy (Cluster 2.0) for an additional three-year period (2009 to 2011) with a total budget of EUR 1.5 billion intended to widen the scope of the Competitiveness clusters' activities.

Young innovative company (FR 73)

The first impact study of the young innovative company measure (JEI – FR73) was carried out by the statistical office of the Ministry for the Economy, Industry and Employment. According to this study, the measure had made young innovative companies more dynamic in the domain of R&D services. The JEI status allowed for the increase in the growth of the beneficiary companies in terms of employment by encouraging researchers recruitment. Moreover, the tax rebates had enabled productivity increases. If the measure seems to have had a limited impact on business creation, it had moderated young company bankruptcies. The number of companies that had been granted JEI status had

⁶² DIACT, L'évaluation des poles de compétitivité 2005-2008, La Documentation Française.

increased from 1 239 in 2004 to 1 789 in 2006 (+40 %), and the amount of tax rebates received increased from EUR 61 million in 2004 to EUR 88 million in 2006.

In 2008, an evaluation of the JEI measure was carried out by Technopolis France. According to the study, this instrument had both a significant and positive impact on the wage bill, employment and labour productivity growth. In addition, the JEI support measure would have in the short run an additive effect on R&D expenditures of prospective companies. Several impacts on business strategy have been noticed. First, the study stressed the impact on recruitment policies insofar as companies are able to hire more, and above all, to favour employment of skilled personnel thanks to tax breaks. Furthermore, the impact on R&D effort seems positive regarding assets investments as well (prototypes, equipment). The JEI status seems to be an excellent method in preserving the level of R&D activities. However, as regards to marketing and export, the impacts are more indirect ones and in some cases, even non-existent.

What is more, this support measure has also had an impact on the companies' development and competitiveness. Indeed, the survival rate of JEI enterprises is quite good compared with non-JEI companies. Moreover, the JEI status enables companies to have a quicker and uncomplicated development and to be more competitive as a consequence.

Research Tax Credit (FR 109)

An evaluation of the CIR was carried out in 2006⁽⁶³⁾. The evaluation report stated that there are three types of effects. First, the CIR would have a clear impact insofar as the level of tax credit is explicitly taken into account by the company that increases its overall R&D expenditures in accordance with the tax credit it will benefit from. Second, it would have an indirect impact: the tax credit is not explicitly calculated by the company when planning its R&D budget. However, the company is keen on financing more research than it would have done without the CIR. As it is the case with the JEI, the CIR also has a positive impact on the recruitment of researchers by private companies. Third, no real impact was noticed on the level of expenses. For the company, the tax credit does not impact its R&D budget in nominal terms and indeed, without the tax credit, this level would have been the same.

Overall, the evaluation concluded that even if the CIR has impacts on private R&D expenditures, the measure could be improved and be simplified especially. As a consequence, the budget act for 2008 radically simplified the mechanism by abolishing the fraction calculated over the spending increase and significantly raising the tax credit rate applied to the spending volume from 30 % of R&D expenditure up to EUR 100 million (50 % for the first year and 40 % for the second). Beyond that amount, businesses are eligible for a 5 % tax credit without a cap. Since January 2009, companies can obtain an immediate refund of their CIR for 2005, 2006, 2007 and 2008 that has not yet been used or mobilised.

In September 2009, the Ministry for Higher Education and Research released the first quantitative results analysing the reform of the CIR and stressing that the measure seems to be a shock absorber during the crisis and a springboard for the post crisis⁽⁶⁴⁾. According to the Ministry, the overall level of business R&D investment in France remained stable in 2008 (about EUR 15 billion) thanks to the CIR. However, France's impact by the crisis has been approximately a year delayed in coming, which serves to undermine this encouraging figure.

The 2008 reform is valued by enterprises. Indeed, the number of registered enterprises has noticeably increased since the end of 2007 (+24 %). In 2009, the number of registrations has doubled compared to 2008. Thus, one of the main results of the reform and the CIR simplified mechanism is the increased use of the CIR by enterprises. Moreover, the study shows that most businesses (53 %) increased their R&D expenditures, particularly through and on account of the CIR. Apart from the automotive (-20%) and the aviation (-20 %) sectors (particularly affected by the economic crisis from 2008), the other sectors have increased their expenditures (+2 %).

⁶³ Technopolis, Philippe Larrue, Patrick Eparvier, Sophie Bussillet, Etude de l'impact du Crédit Impôt Recherche, Mai 2006.

⁶⁴ See <http://www.enseignementsup-recherche.gouv.fr/cid49080/le-cir-un-amortisseur-pendant-la-crise-et-un-tremplin-pour-l-apres-crise.html> online.

According to a survey carried out in 2008, the CIR has had a number of positive impacts:

- 58 % of businesses consider that the reformed CIR encourages the increase of R&D expenditures;
- 34 % recognise that the CIR fosters joint research;
- 29 % acknowledge that it encourages the hiring of PhDs.

National competition for creation of new technology-based firms (FR 11)

An official evaluation has been launched in January 2009 and results are not yet available. However, analysis of public monitoring data allow for some observations on the scheme. Since its inception, the national competition seems to fulfil its role rather well in detecting innovative projects. Actually, the 10 annual competitions organised generated more than 14 000 applications. Every year the competition rewards between 150 and 200 laureates, with a total of 2 049 successful candidates in 10 years and over 1 000 businesses created after the competition (among which more than 80 % were already in operation in 2007). The global rate of business creation stands at 63.5 % and represents 90 % for laureates of the component 'creation and development' against 21.7 % for the winners of the component 'emerging projects'. As for the firms' survival rate, it is quite satisfactory: since the start of the competition, 82 % of firms created are still in operation and 85 % have exceeded five years.

According to a study by the General Inspection for Higher Education (IGAENR) in 2005, the national competition for the creation of new technology-based firms has real positive effects on the process of business creation. It enables the start-up, the search for other sources of financing, and improvement of the technological maturation of a new product.

Even though this instrument seems to fulfil its role in detecting innovative projects, supporting the creation of innovative firms, and promoting public research, some limits have been revealed, including poor profitability of the firms created and difficulty in obtaining new financing, a lack of maturity in the projects, or a poor standard of human resources and managerial capabilities.

In addition, this support measure seems to be a capable means of favouring public research valorisation. Indeed, over the years, the number of successful projects originating from public research continue to increase.

To conclude, the range of measures developed in order to support the private and public actors in their research and innovation processes appear relevant and quite appropriate to the challenges faced by the French innovation system. In view of the weaknesses of the French RDI system, and in particular the lack of private R&D investment, most of the measures carried out put the emphasis on the need to increase private R&D by reinforcement of the innovative behaviour of companies, especially SMEs.

3.3.1 Conclusions: possible future actions and opportunities for innovation policy

From previous discussions in this chapter, it appears that major brainstorming and benchmarking of policy practices has led to major reforms. These reforms tackle the 'complexity' issue of the system (various actors providing numerous support) by simplifying the overall innovation policies planning and delivery mechanisms. These reforms impacted, or are soon to impact, the innovation policy effectiveness, most notably in the way it is defined and implemented. All these reforms will be evaluated.

The reorganisation of the policy delivery will be subject to an evaluation. In particular, the functioning of agencies, namely the ANR and OSEO Innovation. The former because an assessment of a new way of distributing public funding to research in France is necessary after five years of operation. The latter because its organisation was challenged a couple of years ago by the court of auditors, but no new information on the way it operates have been released. In parallel, its prerogative and role in the innovation system has increased.

The national strategy for research and innovation, the first document of its kind established in France, has to be fully implemented to improve the overall quality of the innovation policy through the enhancement of the visibility and coherence of the system. The strategy has to be monitored and information on its implementation has to be retrieved in order to measure the effectiveness of these choices. Several reports judged that the policy could not be adjusted properly if the information that forms the basis of the policymaking is not accurate.

Finally, all the efforts in terms of concentrating the funding on significant support measures (CIR, Competitiveness clusters), also have to be monitored and evaluated on a regular basis. Funding and planning for evaluation and qualitative monitoring will be defined at the time an overall policy or support measure is defined, as it has been done for the competitiveness cluster policy.

Annexes

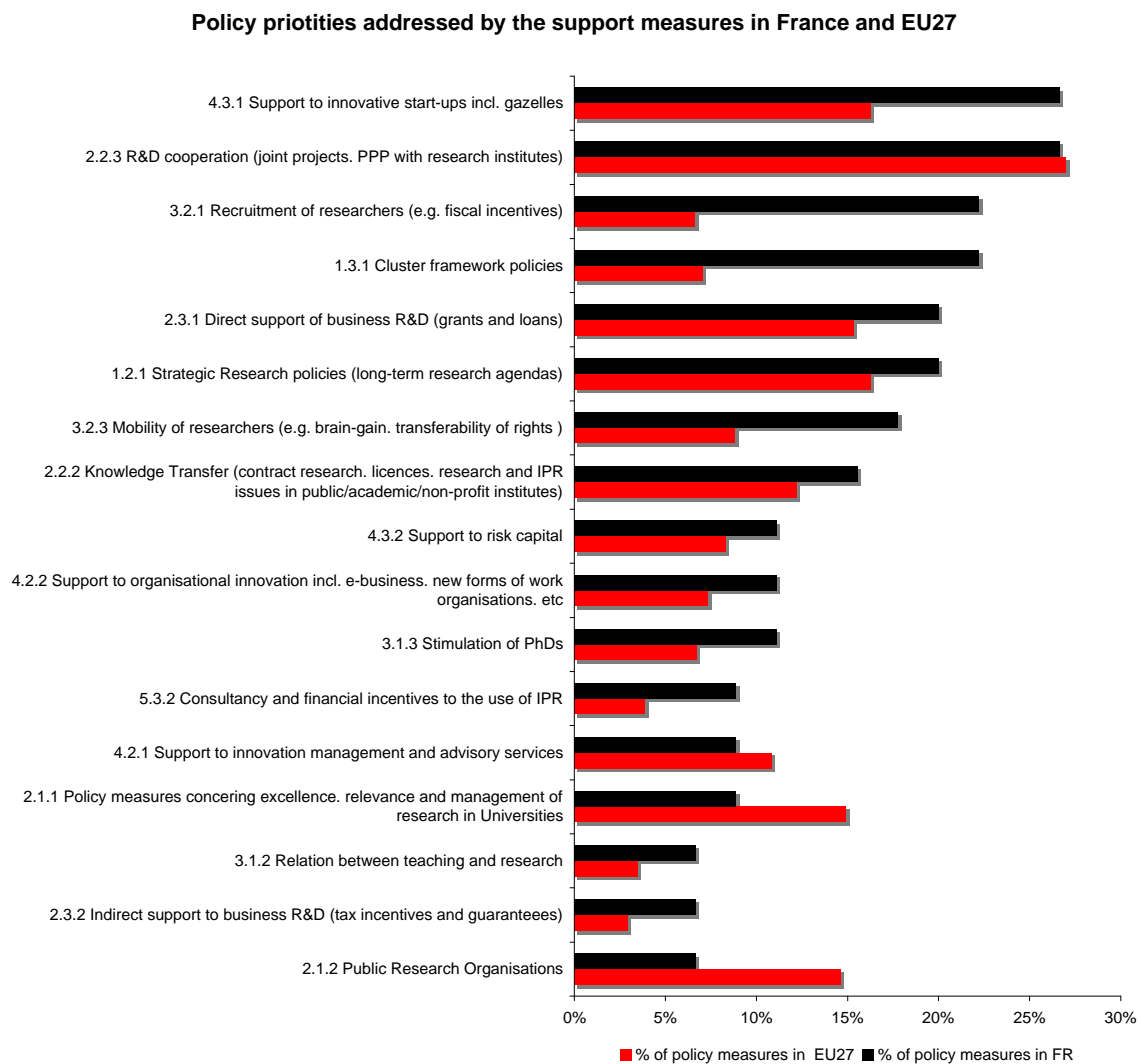
Annex 1: Country pages – Innovation Policy Support factsheet

This factsheet is based only on the information contained in the support measure database for each country.

1. Main policy priorities addressed by the support measures (CHART)

- simple count of measures
 - o in case of the support measures with multiple priorities each indication of priority will be counted as one
- priorities will be presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group

Figure 1: Main priorities addressed by the support measures in France in a comparative perspective

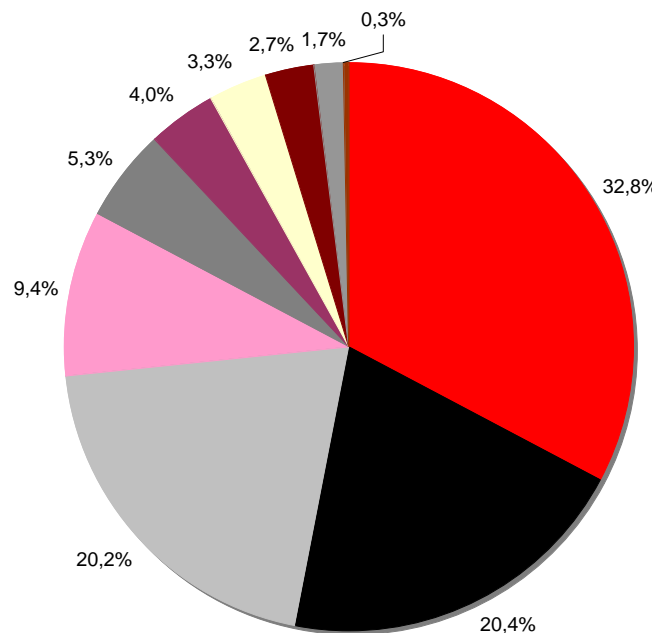


2. Main policy priorities and their estimated budget (CHART)

- main policy priorities addressed in a country (simple count of measures)
- compared to
- estimated sums of annual budgets of support measures per policy priority
 - o since we don't have (and in most cases cannot have) information on how much is spent per priority within one measure we can consider here either
 - (a) summing up total annual budgets of measures addressing a given Opriority (simple sum) OR
 - (b) dividing budgets of measures per number of priorities targeted by a given measure (fractional sum) OR
 - (c) considering just one key priority per measure
 - o where annual budget is not indicated, notably in case of multi-annual measures, it will be estimated (budget/duration in years)
 - o budget allocations will be also taken into account (notably for the measures under SF 2007-2013)

Figure 2: Estimated annual budget allocations per policy priority in France

Estimated annual budget per policy priority in France

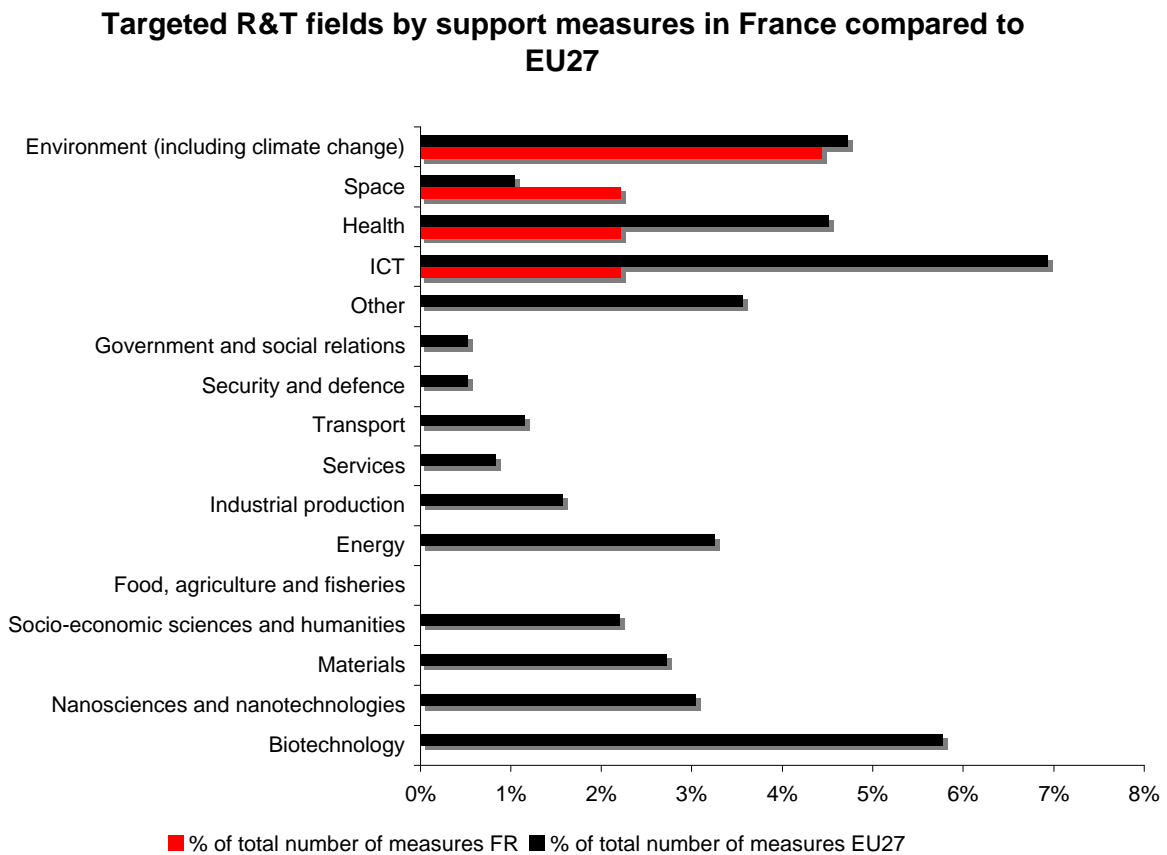


- 1.3.1 Cluster framework policies
- 4.3.1 Support to innovative start-ups incl. gazelles
- 2.3.2 Indirect support to business R&D (tax incentives and guarantees)
- 4.3.2 Support to risk capital
- 1.2.1 Strategic Research policies (long-term research agendas)
- 2.2.3 R&D cooperation (joint projects, PPP with research institutes)

3. Targeted research and technology fields (CHART)

- presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group
- if possible budget data will be added
 - o estimating budget per field will be challenging for the same reasons as explained above

Figure 3: Targeted R&T fields by support measure in France compared to EU 27

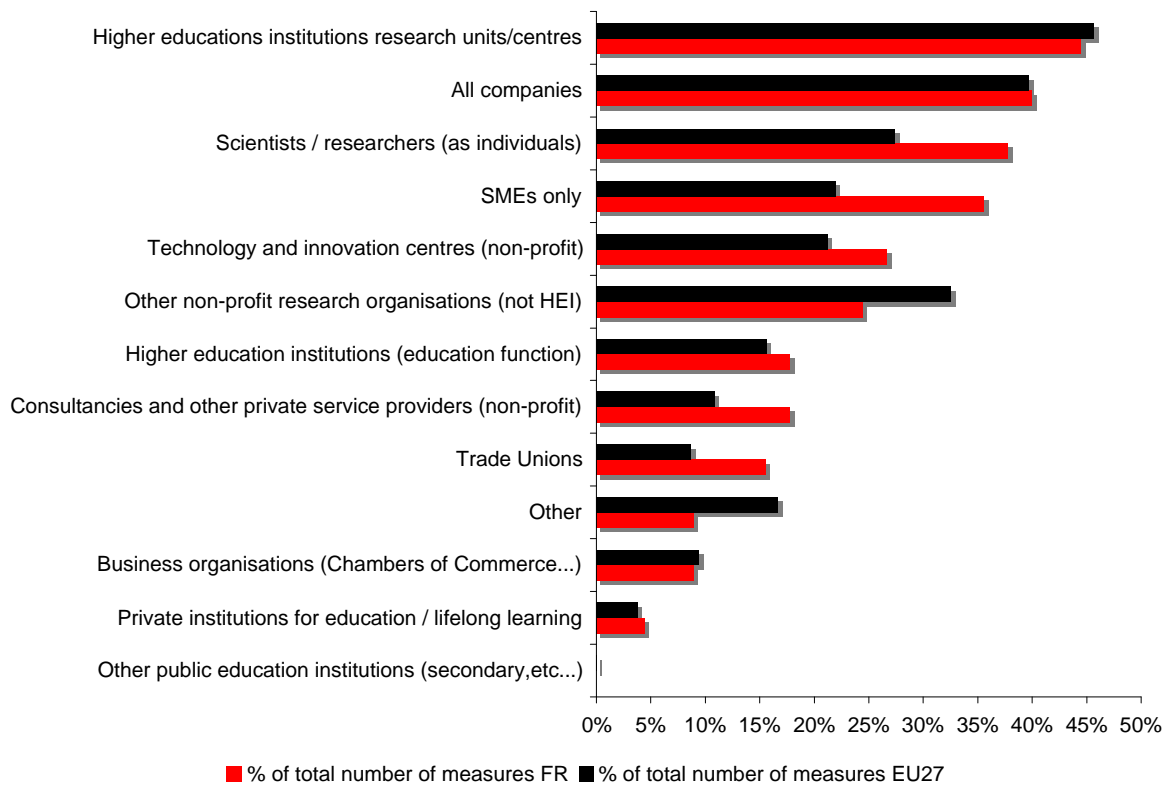


4. Target groups of support measures

- presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group
- if possible budget data will be added

Figure 4: Target group of support measures in France compared to EU27

Target groups of support measures in France compared to EU27

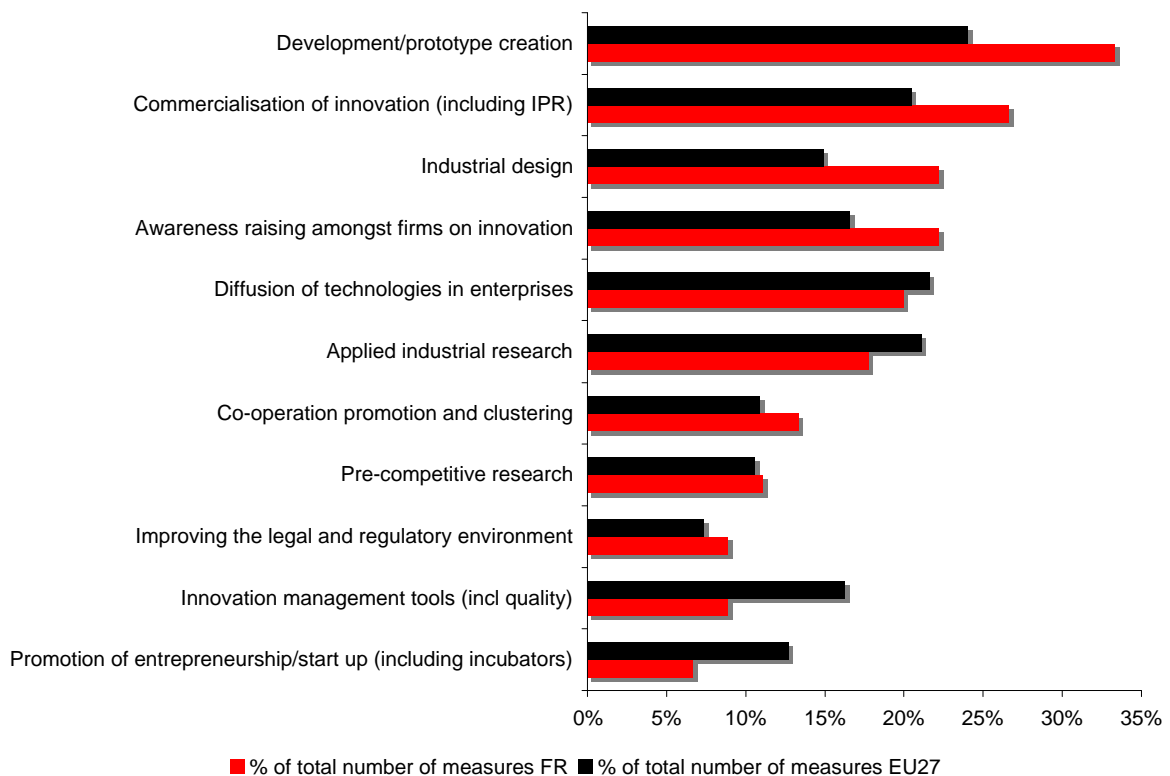


5. Aspects of innovation process targeted by measures (CHART)

- presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group
- if possible budget data will be added

Figure 5: Aspect of innovation process targeted by measures in France compared to EU 27

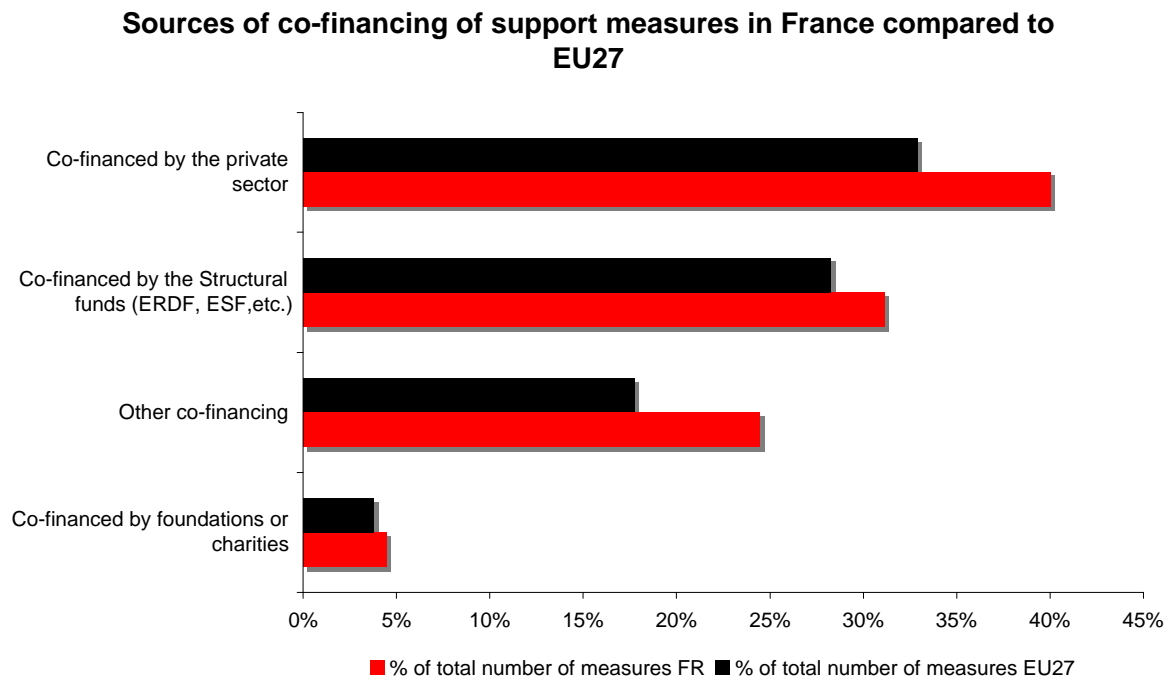
Aspects of Innovation process targeted by measures in France compared to EU27



6. Sources of co-financing of support measures (CHART)

- presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group
- if possible budget data will be added

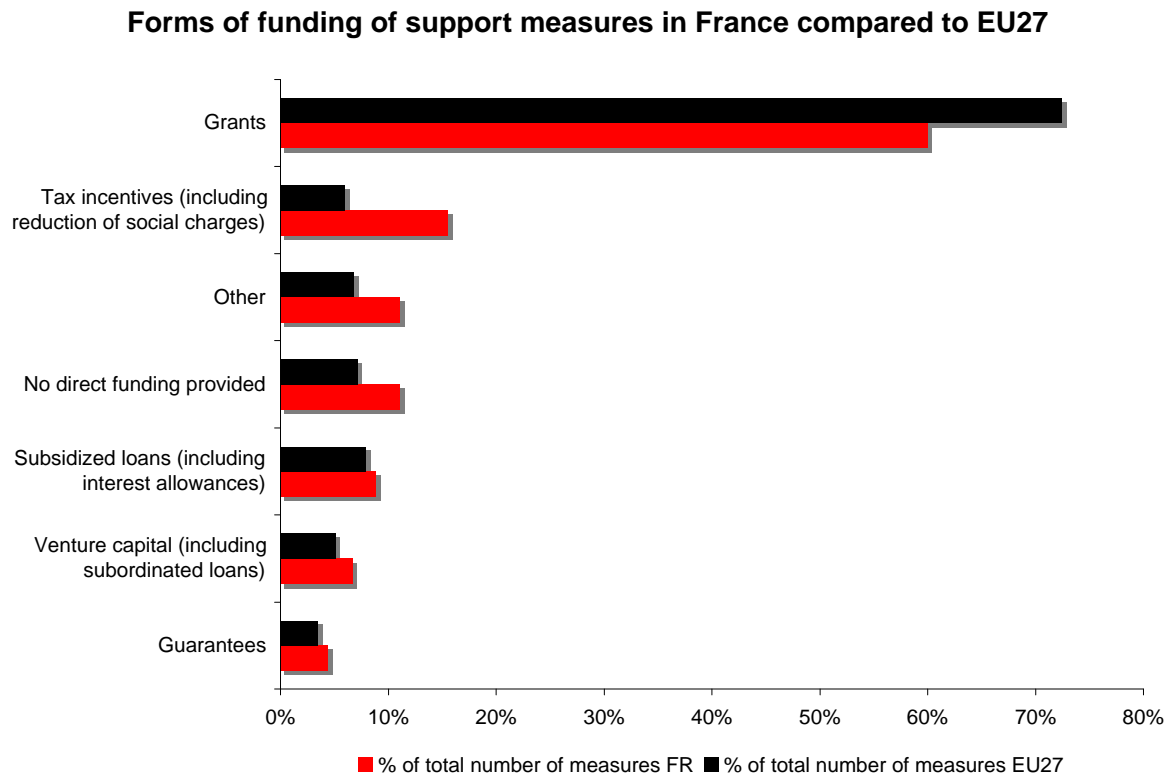
Figure 6: Source of co-financing of support measures in France compared EU27



7. Forms of funding of support measures (CHART)

- presented as % of all country support measures
- compared to the equivalent shares on the EU level and the relevant EIS group
- if possible budget data will be added

Figure 7: Forms of funding of support measure in France compared to EU 27



Bibliography

Book/Report

Centre d'Analyse Stratégique, 2008, France 2025, Groupe 5 Creation, Recherche, Innovation
www.strategie.gouv.fr/IMG/pdf/5_Creation_recherche_et_innovation_.pdf

CM International, Boston Consulting Group, (2009) *L'évaluation des poles de compétitivité*, Diact, La Documentation française.

Forissier N, (2009), Financement en fonds propres des PME, Rapport d'information Assemblée nationale n° 1547
www.assemblee-nationale.org/13/pdf/rap-info/i1547.pdf

Futuris, (2008), La recherche et l'innovation en France

Inspection générale des finances (IGF), Inspection générale de l'administration de l'éducation nationale et de la recherche (IGAENR), (2007), Rapport sur la valorisation de la recherche, janvier
http://lesrapports.ladocumentationfrancaise.fr/cgi-bin/brp/telestats.cgi?brp_ref=074000113&brp_file=0000.pdf

Kergueris J., Saunier C., (2009), la stratégie de recherche et d'innovation en France, Rapport d'information du Sénat n°392
www.senat.fr/rap/r07-392/r07-3927.html

Oséo (2009), Rapport d'activité 2008 d'Oséo Innovation
http://www.oseo.fr/notre_mission/information_financiere/rapports_annuels

Ministère de l'enseignement supérieur et de la recherche, (2009), La Stratégie Nationale de recherche et d'innovation, Présentation des priorités nationales
media.enseignementsup-recherche.gouv.fr/.../Presentation_des_priorites_de_la_SNRI_64449.pdf

Ministère de l'enseignement supérieur et de la recherche (2008), PLF 2009, Rapport sur les politiques nationales de recherche et de formations supérieures

Technopolis Group, (2008) Evaluation du dispositif relatif aux Jeunes Entreprises Innovantes.

Working paper, conference papers, etc.

Postel-Vinay G., (2009) "La crise et les aides aux entreprises dans le domaine de la R&D", document presented at aFuturis meeting 2009, "Le soutien public à l'innovation des entreprises : quelle efficacité, quelles perspectives ?", Association Nationale de la Recherche et de la Technologie.
postel-vinay.net/doc/conf_futuris_010409.ppt

Fournet C., (2009), "Les soutiens d'OSEO au financement des entreprises innovantes ", document presented in a REPERES conference on the "Contraintes de credit et dépenses de R&D".
<http://cisad.adc.education.fr/reperes/telechar/semloc/semloc28/fournet.ppt>

Ministry for higher education and research, DEPP, 2008, Repères et références statistiques sur les enseignements, la formation et la recherche - édition 2008

PROJET SNRI, Document de travail, (2009), Défis transverses du système de recherche et d'innovation, Ecosystème de l'innovation

RETIS, (2008), Livre blanc, 10 propositions pour favoriser l'innovation en France.

http://www.retis-innovation.fr/downloads/Livre_Blanc.pdf