

RIP-WATCH

ANALYSIS OF THE REGIONAL DIMENSIONS OF INVESTMENT IN RESEARCH

CASE STUDY REGIONAL REPORT: CORSICA (FRANCE)

**Authors: Patrick Eparvier, Soheir Dani and Pierre Bitard
Technopolis France**

Date: June 2007

ERAWATCH Network asbl: Project management: Logotech S.A., Project team: Technopolis France

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Case Study Regional Report on the Regional Dimensions of Investment in Research

OBJECTIVE

The main objective of this regional case study report is to provide a better understanding of the structural and techno-economic characteristics of the European region analysed, to present the key factors conducive to increased investment in R&D and to identify the key R&D policy challenges the region is facing.

BACKGROUND

In partnership with DG Research, the Institute of Prospective Technological Studies of the Joint Research Centre (JRC-IPTS) has been conducting a watching brief on policy developments aimed at promoting both private and public investment in R&D (RIP-WATCH). A stated aim of this policy watch activity is to take stock of developments aimed at increasing investments in R&D in the European regions.

In the design phase of the activity, a typology of the European regions was produced. A balanced mix of regions was selected from each of the nine regional types identified, representing fifteen member states of the European Union.

REGIONS COVERED

Phase 1		Phase 2	
1. Andalusia (ES)	2. Catalonia (ES)	11. Bavaria (DE)	12. Corsica (FR)
3. Carinthia (AT)	4. Crete (EL)	13. Emilia-Romagna (IT)	14. Etelä-Suomi (FI)
5. Dél-Dunántúl (HU)	6. Jihozápad (CZ)	15. Lorraine (FR)	16. Midi-Pyrénées (FR)
7. Norte (PT)	8. Sicily (IT)	17. Saxony (DE)	18. Scotland (UK)
9. Styria (AT)	10. Wielkopolskie (PL)	19. Västsverige (SE)	

THE REPORTS

The regional reports are structured according to the following two interrelated dimensions of regional techno-economic systems:

- **Regional knowledge base**, including the research, technological development and innovation (RTDI) infrastructure, human resources, RTDI efforts and outcomes and knowledge-transmission mechanisms in the region.
- **Regional economic structure**, including the productive structure, regional clusters and networks, international position and financial capacities and instruments.

Each report examines these dimensions from two points of view: their current state, as reflected in a selected set of regional indicators, and their policy context (i.e. policy framework, actors, objectives and instruments).

In addition to the regional case study reports, a **synthesis report** will be produced that combines and interprets the information contained in the case study reports. This will present the strengths and weaknesses of the regions covered and the factors that determined the trajectories of development of their R&D and innovation capacities. It will also discuss the main R&D and innovation challenges identified.

The JRC-IPTS launched the second phase of the activity in December 2006 with the contribution of the ERAWATCH Network. The work was undertaken between December 2006 and May 2007 by a project team led by LOGOTECH S.A. (EL) with the participation of Advansis Ltd, (FI), Faugert & Co Utvärdering AB (SE), Fraunhofer Institute for Systems and Innovation Research (ISI) (DE), Institute for Policy and Practice of Centre on Knowledge, Innovation, Technology and Enterprise (KITE) of University of Newcastle (UK), PREST – Manchester Institute of Innovation Research (UK), and Technopolis France (FR).

The regional case study reports produced in the study are now available on the ERAWATCH web-site at <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=intService.home>

The synthesis report will also be available on the ERAWATCH web-site.

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Abbreviations

MC	Management Committee
PM	Project Management
ToR	Terms of Reference
ANBERD	Analytical Business Enterprise Research and Development Database
BERD	Expenditure on R&D in the business enterprise sector
EPO	European Patent Office
GBAORD	Government budget appropriations or outlays for R&D
GDP	Gross domestic product
GERD	Gross Domestic Expenditure on R&D
GUF	General university funds
HERD	Expenditure on R&D in the higher education sector
INSEE	National Institute for Statistics and Economic Studies
ISIC	International standard industrial classification
IPTS	Institute of Prospective Studies, Seville, Spain
MENESR	Ministry for Education, Higher education, and Research
MENRT-DT	Ministry for Education, Research and Technology
N.E.C	Not elsewhere classified
PPP	Purchasing Power Parity
TCC	Territorial Collectivity of Corsica

1 Introduction

Even though Corsica is usually referred to as a 'French region', strictly speaking it is a 'territorial collectivity' (the Territorial Collectivity of Corsica). As such, it has broader powers than other French regions. The island is separated from the French mainland — referred to as 'la Métropole' — though politically part of Metropolitan France (see Figure 1).

Corsica's economy was for a long time based on agriculture and livestock-breeding. Nowadays its tertiary sector is dominant and tourism is the island's main industry. The number of tourists has quadrupled in 20 years; 60% of them visit the Isle between July and August. Not only is the tourist industry seasonal, so are the activities which serve it and, therefore, the whole economy. The rest of the year, the economy of the island is geared mainly to satisfying the needs of its population. Tourism is a fundamental determinant of the island's growth. Of all the regions of France, Corsica's economy is the most dependent on the service sector, which accounted for 84% of the region's Gross Domestic Product (GDP) in 2000. However, since 2000, the flow of tourists has been sluggish. In the current situation, a return to strong growth requires an increase in tourist numbers.

In addition, population trends raise a major problem in terms of growth. Corsica's low birth rate, if it is not compensated for by immigration, will significantly affect its potential for economic growth.

GDP *per capita* still remains the lowest in France, although it is growing at the national average rate. With a GDP of EUR 5 686 million in 2004, Corsica only accounted for 0.3% of the GDP of metropolitan France. GDP *per capita* (EUR 20 918 *per capita* in 2004) was more than 11.5% below the national average.

The industrial sector only accounted for 13.4% of the value added of the region's economy, compared with national average of 21.5% in 2003. The construction sector benefits from tourism. In 2000 it represented 6.2% of the value added of the region's economy, which is the highest percentage for any region in France.

In 2006, Corsica scored very low in the European Commission's classification of innovation in the European areas: 168th out of 208 areas evaluated. Corsica is the lowest performing French area for innovation; many regions of the Eastern Europe countries perform better.

Table 1 Key Data

	Corse	Metropolitan France	Corse / France	European Union
Surface area (km²)	8 680	543 966	1.6%	3 929 712
Population in millions (January 2005)	0.28	60.70	0.5%	461
Population density (hab/km ²)	32	112	/	117
GDP <i>per capita</i> (2004)	20.9	27.1	/	22.7
Unemployment rate (December 2005)	10.1%	9.5%	/	8.4%
R&D Expenditures in Euros (2005)	13.2 million	36.4 billion	0.04%	200 billion

Source: INSEE website.

Figure 1 Corsica's location



Source: http://europa.eu/abc/maps/members/france_en.htm

2 Regional Knowledge Base

2.1 Description of the regional knowledge base

2.1.1 Knowledge creation capacity

Knowledge infrastructure

The knowledge infrastructure of Corsica represents a very limited part of the national infrastructure. R&D capacity is to be found more in the public than in the private sector. Note that data on private/industrial R&D is hard to obtain due to the low number of enterprises on the island. The number of companies conducting private R&D in Corsica is so small that publishing this information would be prejudicial (it would give a very close estimate of the expenditure of each company). As a result, quantitative indicators on private R&D activities are subject to the *statistical secrecy* rule,¹ which protects individuals from harmful information collection. To get around this problem, data for the region are often included in the PACA region. Consequently, in order to give a picture of Corsican R&D capacity, we have used proxies where necessary.

Corsica hosts the University of Corsica, also known as the 'Università di Corsica Pascal Paoli', which is located in Corte, in central Corsica. Compared with other French regions, Corsica, together with the Bourgogne, Limousin and Basse-Normandie regions, has the weakest public knowledge infrastructure in France (Table 2, Annex 3).

Corsica has 4 higher education institutes (HEI):

- The University Institute of Technology (IUT) (IUT di Corsica);
- The Faculty of Science and Technology (FST);
- The Doctoral school "environment and societies";
- The Institute of Business Administration of Corsica (IAE de Corse).

All together the Corsican HEIs admitted 5322 students in 2005-2006, Of these students, 97.7% were in the public sector and 71.2% at the University of Corsica. In 2005-2006 the University of Corsica recorded 3789 students, 230 professors and researchers, 130 administrative staff, and 590 external instructors.

Altogether, Corsican ISCED 5 and 6 students represented 0.22% of total ISCED 5 and 6 French students in 2004 (Eurostat).

According to the Single Programming Document (DOCUP) 2000-2006, in 2000 about 70% of Corsican post-secondary students continued their studies on the island. The full breakdown was:

- 35% at the University of Corsica;
- 18% in a higher technician section of a school;
- 12% at the IUT;
- 4% in a preparatory class for the *grandes écoles*;
- 30% at the universities of Nice, Aix-Marseille and Paris.

The University also hosts 12 research centres (Table 3, Annex 3). Research is structured around six multi-disciplinary large research projects. This project-based research policy aims at enhancing the University's research capacity, allowing synergies to develop.

The six priority projects are:

- Fires (forest fires);

¹ Law No 51-711 of 7 June 1951, Art.1 amended on 25 March 2004, Order No 2004-280 Art. 1, Journal Officiel de la République Française (JORF: French official journal), 27 March 2004.

- Renewable energy;
- Natural resources;
- Management and 'valorisation' of Mediterranean waters;
- Territorial dynamics and sustainable development;
- Identities, cultures: processes of inheritance.

About 25% of registered students are in 'Science and Technology'. The University of Corsica encourages international student mobility and innovation and raises awareness of local issues. Research is geared to specific themes in the fields of environment, identities, information and communication technology, and the development of the Mediterranean region. It aims to multiply partnerships with universities, research centres, and companies worldwide, enhancing student, teacher and researcher exchanges. In 2007, the University plans to create a European research group entitled "the insular world in the Mediterranean" gathering together the CNRS and 13 universities in the Mediterranean region.

The University of Corsica was evaluated in 1995 by the CNE (the national committee for the evaluation of public institutions), which reported that the scientific and technology fields should better coordinate the different degree programmes rather than increasing their number. The evaluators highlighted the need for a wider opening to the outside world. The University of Corsica only opened in 1981, so its research activities are very recent and difficult to compare with those of other universities in France.

Apart from the university research centres, Corsica has a few other research establishments presented below (Table 4).

The National Centre for Scientific Research (CNRS) has two laboratories at the University of Corsica, one in Corte and the other in Ajaccio. The SPE centre (environmental physics systems) was created in 2000 and currently has 5 researchers from the CNRS and 63 non-CNRS researchers (professor-researchers from the University of Corsica). The centre's activities focus on the following areas:

- Biomass;
- Energy;
- Modelling and design of systems;
- Mechanics of acoustic fluids.

The National Institute for Agricultural Research (INRA) has two research centres in Corsica:

- The SRA (Agronomic Research Centre) located in San Giuliano;
- The LRDE (Research Laboratory on Breeding Development) in Corte.

The SRA's research activities focus on diversification of citrus fruits and Mediterranean fruits in collaboration with CIRAD (the International Cooperation Centre for Agronomic Research and Economic Development). Together with the personnel of the CIRAD, in 2003 the SRA had 10 researchers and engineers, 18 technicians and 2 administrative employees.

The LRDE's research activities are mainly in breeding management and quality products.

The "Ecole Nationale Supérieure des Arts et Métiers" (ENSAM), one of the two *higher engineering schools* in Corsica, has 8 CNRS laboratories and 14 research institutes, of which 6 approved by the Ministry in charge of Education. In total, the school has more than 290 full-time equivalent researchers. More than 50 doctoral theses are presented each year.

R&D expenditure and personnel

Data on R&D expenditure vary from year to year without any clear trend (Table 5, Annex 3). There are no data on Business Expenditure on R&D before 2002 (for reasons of statistical se-

crecy).

Nevertheless, the GERD² trends for the last 15 years show a very different pattern from the normal French distribution of funding sources. Over the last decade in France, a stable proportion of about two thirds of GERD is associated with the business enterprise sector, while in Corsica this share is very volatile. The main Corsican actor by far remains the (publicly funded) higher education sector. Overall, the share of Corsican GERD in the French GERD increased from 0.02% in 1991 to 0.04% in 2003 (see Table 6).

Corsica has continuously increased its R&D personnel capacity: from 41 R&D personnel in firms and 178 in public administrations in 1997 to 154 R&D personnel in firms and 217 in public administrations in 2002 (See Table 9, Table 11 and Table 14 in Annex 3)

In the public sector, the ratio of researchers in Corsica is above the national ratio (respectively 10.4 per 10 000 versus 12.3 per 10 000). In the industrial sector, the gap in R&D personnel between Corsica and the national average is significant (1 per 10 000 versus 11.8 per 10 000). R&D personnel in Corsica account for 0.11% of total R&D personnel in France.

From 1994 to 1999, ANVAR, the French national agency for innovation (now incorporated in OSEO), awarded funds for the recruitment of 10 R&D personnel.

Under the 2004-2007 Convention, the ministry in charge of education, higher education, and research provided for the recruitment of:

- 19 professors-researchers;
- 6 administrative staff;
- 15 R&D personnel appointed by the research centres, in particular the CNRS.

Additionally, the university plans to invest EUR 900 000 in research equipment for 2007 (funds from the Corsican regional authorities).

Investment in R&D infrastructure

Since 1983, the Corsican regional authorities have invested EUR 29 million in the construction of buildings for higher education, student social facilities, and the development of research and adult training capacity.

Since 2002, the Corsican regional authorities have been officially responsible for higher education and research in terms of financing, building, equipment, and maintenance of higher education establishments. The State, the Corsican regional authorities and the University of Corsica signed a regional action plan on higher education and research for 2004-2007. A new convention should be signed in 2007 for the period 2008-2011.

Under the 2004-2007 Convention, the Corsican regional authorities have launched a large infrastructure project aiming at regrouping a university library, a university cultural centre and administrative structures at a cost of EUR 20.3 million. This project should be completed in 2010. Further investment in infrastructure was made to increase the university's admission capacity to 6000 students. This included maintenance, renovation and safety standard setting, but also:

- the launching of the construction of an environmental research institute (10 000 m²);
- the extension of the IUT in Corte.

Funding of R&D

² Gross domestic expenditure on R&D. GERD=BERD (Business Expenditure on R&D) + GOVERD (Government Expenditure on R&D) + HERD (Higher Education Expenditure on R&D) + PNP (Not for Profit Organisations' Expenditure on R&D).

R&D funding is currently based on a 4-year convention committing the French Government and the Corsican regional authorities to fund a pre-established number of measures for R&D.

The Corsican regional authorities plan to invest EUR 87.5 million over a 10-year period to participate in the development of the University of Corsica and to offer grants for investment in new equipment.

French average internal R&D spending as a share of GDP in 1999 was 1.8%. The highest ratio was 4% for the Ile de France region: Corsica's ratio was the lowest and the only one below 0.25%.

In comparison with other French regions, the French innovation agency, ANVAR (now OSEO), has funded few projects in Corsica. From 1994 to 1999, the average was around EUR 600 000 a year. In 2005, the Corsican regional authorities and OSEO signed an agreement to better organise human and financial resources dedicated to technological development and innovation. To this end, OSEO provided EUR 13 million to set up and operate a regional pole of innovation from 2006 to 2013.

From 1989 to 1993, Corsica, as an 'objective 1' region,³ received EUR 36 million a year from the European structural funds. From 1994 to 1999, the amount increased to some EUR 47 million a year. These funds were mainly allocated to transport infrastructure and building construction and renovation. Corsica has used very little European funding for R&D despite being an objective 1 area until 1999. The island still receives funds, although they are being phased out.

For the period 2000-2006, RTDI intervention as a percentage of total structural funds allocated to Corsica only came to 1.14% of total objective 1 funds, which is below the French average of 2.48% for regions receiving objective 1 funds (see Table 8).

The region has taken up very little of the Research Tax Credit. According to data published by the French Ministry for Education, Higher Education and Research (see Table 10), no Corsican company requested a tax credit for research in 2004, and only one company requested a tax credit for research in 2003 and received EUR 12 000. Corsica has the lowest number of companies requesting and receiving the Research Tax Credit. In 2003, 2752 French companies received EUR 427 754 000 in 23 French regions, an average of about 119 companies per region and EUR 155 000 per company. In 2004, a volume-based scheme was introduced for the Research Tax Credit (5%). The volume was set at 10% in 2006. These reforms will perhaps have an impact on R&D investment. At the moment, data are not available to assess the effects on Corsican companies.

Knowledge output and the quality of research infrastructure

The number of patent applications (see Table 17 and Table 18) gives an illustration of Corsica's R&D effort. Corsica applied for 0.05% of French patent applications in 1998.

2.1.2 Knowledge diffusion capacity of the region

Most of the various Corsican structures to disseminate knowledge and promote research have been set up recently; it is generally too early to assess their efficiency.

The University of Corsica has its own 'research valorisation service'; its mission is to promote the university's knowledge and research capacity and to develop partnerships with the university's socio-economic environment. The University of Corsica opened in 1981 but the research valorisation service was set up only in 2004.

³ Objective 1 is to help regions that are lagging behind in their development.

The University of Corsica and the Bastia technology park, Futura Corse Technopole, set up a regional incubator, I2TC, in 2000 in partnership with several local research organisms. The incubator is financed by the Corsican regional authorities and the French Ministry for Education, Higher Education, and Research. I2TC is managed by the economic development agency of Corsica (ADEC). It is an instrument of the regional innovation pole. The incubator aims:

- to detect interesting innovative projects in collaboration with the university's research valorisation service;
- to select and help innovative projects with economic potential to set up companies.

I2TC focuses on projects in the fields of renewable energy, information and communication technology, aeronautics, agrifood, aromatic and medicinal plants, and aquaculture.

According to an assessment of RDI support measures by the Technology Directorate of the French Ministry for Research,⁴ about three years after the creation of 31 incubators sponsored by the Ministry, the Corsican incubator was being reorganised. The French Ministry for Research commissioned a mid-term review of the 31 incubators in 2003,⁵ which resulted in the following recommendations for the Corsican incubator:

- improve the incubator's presence in the regional R&D environment and the involvement of regional actors in the incubation process (and not only in the selection of projects);
- set up a communication strategy for all Corsica;
- improve the accompaniment of projects using external experts and coaching;
- clarify the respective roles of the incubator and of the Technological park;
- build piloting tools for incubator activities (timesheets, project follow-up, etc.).

The review pointed to the following results for the period 2000-2003:

- 15 jobs created, including 5 in one company⁶;
- no significant fund raising, projects with very low sales turnover;
- sustainability of the projects/companies created was not guaranteed;
- the projects needed coaching on commercial and economic issues;
- the slight local potential of innovative projects had to be considered in interpreting the results.

The Ajaccio Chamber of Commerce and Industry runs a business incubator, whose mission is to accommodate young innovative companies.

Corsica hosts two regional centres for innovation and technology transfer (CRITTs), located in Bastia and Biguglia. The CRITTs were created in the 1980s in France to improve SME-SMIs' technological level. They are technological resource centres for SMEs based on the competencies available locally (PRI). Each CRITT specialises in a particular field — ICT, agro-bio industries, engineering, water, or wood. Together with Languedoc-Roussillon, Champagne-Ardenne and Réunion, Corsica has one of the lowest numbers of CRITTs on its territory.

The Corsican CRITTs maintain preferential relations with the University of Corsica and are an intermediary between the University and SMEs. An evaluation of the University of Corsica⁷ em-

⁴ Ministère de la recherche, Direction de la Technologie (2005), *Mesures de soutien à l'innovation et à la recherche technologique, bilan au 31 décembre 2004*.

⁵ Ernst&Young (2003), *Évaluation à mi-parcours des incubateurs d'entreprises innovantes liées à la recherche publique*, Rapport pour le Ministère délégué à la recherche.

⁶ In comparison, the PACA Est incubator in Provence-Alpes-Côte d'Azur, a region with very high RDI potential, has supported 30 projects, as a result of which 21 companies were created and about 115 jobs created in the period 2000-2003.

⁷ CNE (1995), *Rapport d'évaluation de l'Université de Corse Pascal Paoli*.

phasises that this strong connection with the University appears excessive to the local public authorities, which would prefer CRITT to be more open to other partners (INRA, trade unions in the local communities, etc.) and to the industrial sector.

Neither of the Corsican CRITTs has obtained the status of CRT (technological resource centre). This is awarded by the Ministry for Education, Higher education, and Research and the French Ministry for Industry according to the following criteria:

- performance in terms of results, costs and delay;
- a tailor-made response to SMEs' needs;
- continuous updating of knowledge and information from research laboratories.

The fact that neither of the two Corsican CRITTs is a CRT points to the problematic efficiency of the centres.

Corsica shares a Competitiveness Cluster, CAPENERGIES, with the Provence-Alpes-Côte d'Azur (PACA) region. The Corsican section of CAPENERGIES aims to develop regional knowledge of renewable energy and to promote SMEs' industrial strategies in the area. The Corsican section of CAPENERGIES would like to create two technological platforms: a platform for wind energy in Bastia and a solar platform in Ajaccio, together with a research platform on biomass at the University of Corsica in Corte. Currently only the project to set up the solar platform in Ajaccio has been submitted to the Strategic Committee of CAPENERGIES.

The Corsican Technological Development Network assists Corsican companies with their technological development, offering access to external resources and support for drafting their technological development projects.

Corsica's Agency for Economic Development (ADEC) aims to stimulate economic development i.e. industry, trade, craft, energy equipments, renewable energies, and information and communication technology.

2.1.3 Knowledge absorption capacity of the region

Education Level

According to the 1999 population census, only 3.5% of the Corsican population is classified in “higher intellectual professions” (French socio-professional typology). This category includes:

- scientific professors and professions, with knowledge in the fields of sciences or social and human sciences, involved in research, teaching or health activities;
- administration and commercial executives in private companies with important responsibilities in business management;
- engineers and technical experts, with responsibilities requiring scientific knowledge.

In comparison, 5.5% of the French population is in this category. This situation can be explained by the weaknesses of the Corsican education system. The schooling rate for 16-18 year old students in Corsica is below the national average: 94.1% against 96.4% in 2003. The schooling rate for 19-24-year-olds is the lowest in France: 43.6% against 56.3% for the national average. The failure rate during the first year at the University of Corsica is the highest in metropolitan France.

2.2 Policy context

2.2.1 Governance structure and actors

In the 1980s, French regions were given responsibility for managing higher education and professional schools, life-long learning, economic development and regional transport. The status of Corsica is peculiar insofar as Corsica has more responsibility than the other regions. The devolution process started in 1991 when the island’s responsibilities were extended to economic, social and cultural development (Law of 13 May 1991), and the Region of Corsica became the Territorial Collectivity of Corsica. In 2002, the Territorial Collectivity received greater powers, such as a change to its fiscal status, to stimulate private business investment.

Relationships between the State and regions are organised through State-Region Plan Contracts (now called State-Region Project Contracts). Because of the specific status of Corsica, the contract is called State-Territorial Collectivity of Corsica Project Contract. Both types of contract present the priorities of the Region and of the State. The current one, which is not yet signed for Corsica, covers the period 2007-2013.

Until 1999, the whole territory of Corsica was eligible for Objective 1 funding from the Structural Funds. From 2000 to 2006, Corsica benefited from transitional support (phasing out Objective 1 status), in the sense that the region was still eligible for objective 1 for this period but the eligibility was to end thereafter. Commitments made by the European Union, the State and each of the Regions are presented in a document for each Region, called the Single Programming Document. For the period 2000-2006, the single programming document and the State-Corsica Plan Contract were drafted jointly in order to strengthen the overall coherence of public support.

2.2.2 Policy objectives

Even if during the past two decades, the State and the Corsican regional authorities have rather put the focus on the means to ensure the island’s economy catches up with the metropolitan regions, particularly in terms of infrastructure, their efforts to develop its knowledge base are noteworthy.

Corsica is peculiar in the sense that the State plays a prominent role in defining the objectives and terms of funding in comparison with other French regions. This statement also applies to research and innovation.

For the past 15 years, Corsica main RTDI policy objectives have been to develop the linkages between the public science base and the economic development of the economy. For instance, for R&D the Single Programming Document for 1994-1999 focused on the need to develop technology transfer instruments . One important objective was to set up an effective structure to link research, innovation and technological development. In the same vein, the State-Corsica Plan Contract for 1994-1999 included several measures aimed at supporting the creation and the modernisation of SMEs. Among these, some were related to technology transfer.

For 2000 to 2006, the Single Programming Document aimed at improving the technological transfer structure implemented during the previous years via a two-pronged approach: strengthening fields of research excellence and reinforcing the institutions responsible for valorisation. These objectives were especially relevant to issues related to the environment, biodiversity, agro-food industry and innovative technology insofar as they are considered top priorities for the island's economy.

The State-Corsica Plan Contract for 2000-2006 identified four objectives for research and innovation instruments :

- involving the University and Corsica's public research organisation, namely the National Centre of Scientific Research and the National Institute for Agricultural Research (INRA), in the regional incubator;
- supporting agents of technological transfer (in particular the Centres for Technological Development) in maintaining or increasing their technological portfolio;
- introducing a Technological Platform in Bastia to strengthen the technological cluster of the North-East of Corsica;
- helping young graduates to enter Corsican business (through the distribution of specific aid to companies);
- supporting innovation in companies through calls for proposals.

In terms of fields, the State-Corsica Plan Contract identified the following priorities:

- environment: the aim was to create an Institute for Environment and a dedicated doctoral school in order to better structure research performed by the University in this field and to strengthen relationships between Corsican researchers and their peers within the Mediterranean area;
- renewable energy: it was planned to set up a research centre at the ENSAM focused on solar, wind, and biomass energy and fuel cells.

2.2.3 Policy instruments

In order to shape an effective structure to increase research and innovation transfers, the Single Programming Document 1994-1999 designed measures for structuring the research clusters and at the same time reducing their number. The rationale was to set up instruments that would enable research to contribute more effectively to the economic development of Corsica. As a result, the "Proto" department in the CRITT, dedicated to mechanics and engineering, gained visibility. At the same time, a new department was set up, "Qualibab", geared to helping agrifood industry companies to adopt a quality approach. Finally, for 1994-1999, hand in hand with the State-Corsica Plan Contract, the Single Programming Document sought to disseminate knowledge through the creation of three different institutions: the Centre of Industrial, Technical and Scientific Culture (CCSTI), the Technological Diffusion Network and the International Centre for Valorisation of Milk (CIRVAL).

In all, State spending on research and innovation in Corsica is far beyond that in the other metropolitan regions. For 2000-2006, the Single Programming Document planned to devote EUR 1576 *per capita* as against EUR 933 on average for France. For the same period, under the State-Corsica Plan Contract, the State committed itself to allocating EUR 1844 *per capita* com-

pared with a national average of EUR 697. For the specific objective of “research, innovation and higher education”, the average amounts *per capita* earmarked by the Single Programming Document and the State-Corsica Plan Contract were EUR 87 (EUR 86 on average for France) and EUR 121 (EUR 90 on average for France) respectively. The share of the State in the State-Corsica Plan Contract and that of the EU in the Single Programming Document are significantly higher in Corsica than in the other French regions.

The Single Programming Document for 2000-2006 expected to fund research, higher education and innovation with a budget of EUR 22.6 million. The amounts earmarked by the EU, the State and Corsica together, and the private sector were EUR 11.9 million, EUR 8.4 million and EUR 2.2 million respectively. This item ranked 7th and represented 6% of the total budget presented in the Single Programming Document.

Under the State-Corsica Plan Contract for 2000-2006, EUR 15.1 million was earmarked for the item “Research, new technologies and innovation” for the whole period, of which 56% was expected to be financed by the State and 44% by the Corsican regional authorities. In the State-Corsica Plan Contract, the State and Corsica committed themselves to providing higher education with EUR 24.1 million, the lion’s share financed by the former (72.6% against 27.4% for the latter).

In terms of expenditure, the Corsican regional authorities spent EUR 2.4 million on research and of technology transfer in 2003, but EUR 1.4 million in 2004 and EUR 1.3 million in 2005. In 2003, the budget for research and for technology transfers represented 0.6% of the total budget of the Territorial Collectivity of Corsica (0.3% the two following years).

Despite real efforts in past years to strengthen the links between the public science base and the private sector and promote public research, the impact is still low. N. Levratto (2002) explained that the development of public R&D had not so far produced the expected effects on the private sector.⁸

⁸ N. Levratto (2002), Les problèmes et les politiques de développement en Corse”, *Région et Développement*, no. 15.

Exhibit 1: RTD policy mix affecting the region

Policy Areas ⁹	Policy objectives and instruments at national* level affecting the region	Policy objectives and instruments at regional* level
Development of human capital	Setting-up and reinforcement of higher education institutes' delegations in regions	Maintaining a diversified supply of education and training (subsidies for investment in high schools)
Networking, co-location and clustering measures	Insertion of regional research actors within research and innovation networks.	Clustering research actors and developing the technological portfolio of agents of technological transfer were major objectives.
Knowledge and technology transfer to enterprises	Implementation of several structures aimed at clustering research and industry, such as the CRITT, the Regional Technological Networks (RDT)	During the 1990s, the objective was to set up instruments aimed at developing technological transfer.
Support of public research	Development of infrastructure (in particular buildings)	The idea was to cluster public research actors and to increase research specialisation in Corsica.

2.3 Conclusions

Summary graph 1 below illustrates the low level of performance of the region as regards R&D and innovation, as compared with French averages. Indicators of GERD, BERD, HERD, R&D personnel in business sector and patents are very low (between 2% and 21% of the national average). Students with tertiary education represent about half the French percentage. As noted above, Corsica is over-performing in areas supported by government funding, as visible from the remarkable catching-up process in terms of public funded R&D personnel.

Public research in Corsica is rather weak as compared with the other French regions. The little research that is performed is concentrated in a few fields appropriate to the island's character, such as environment and agro-food, but not its industrial base. To be more specific, tourism and services play a major role in the Corsican economy but no research is conducted in these fields.

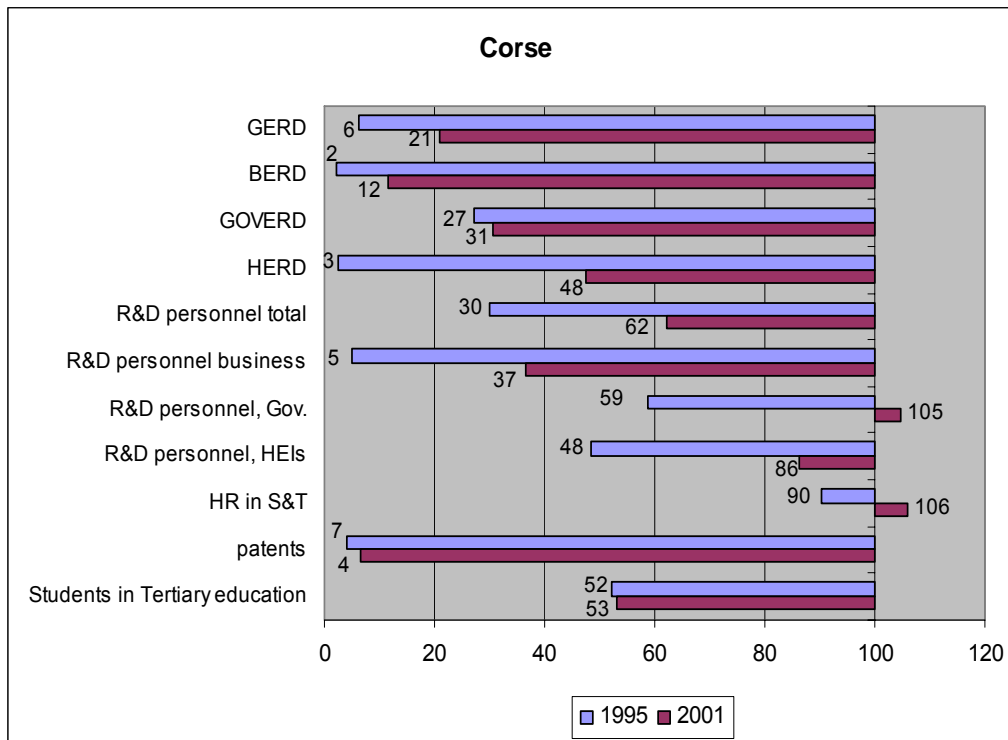
⁹ Compilation from typologies described in the bibliography such as Boekholt, P. et al (2001), An international review of methods to measure the relative effectiveness of technology policy instruments, Technopolis B.V., Amsterdam.

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European Commission (2003), Raising EU R&D Intensity: Improving the Effectiveness of the Mix of Public Support Mechanisms for Private Sector Research and Development, Report to the European Commission by an Independent Expert Group, Brussels. Also TrendChart has developed its own policy mix taxonomy.

Summary Graph 1: Comparison of Corsica's R&D structure with the R&D structure of France



During recent decades, efforts were made to better link the different research actors with companies' needs. Instead of developing research activities for their own sake, the public authorities (the State and the regional authorities, assisted to some extent by the EU) put the focus on the need to develop infrastructure and instruments for expanding technological transfers. The development of these instruments was quite effective.

The desired strengthening of the Corsican knowledge base makes sense if private actors can actually take advantage of the improvements in research capacity. Corsica suffers from structural economic problems due to low levels of both company capitalisation and investment. The focus on technological transfer seems consistent with the features of the island's economy, provided that companies increase their efforts raise their technological level.

N. Levratto (2002) underlined that R&D activity in the island did not benefit from the effect of the relocation of Île de France's R&D that profited the Mediterranean and the Southwest regions. She noted that industrial research and industrial activity are always strongly connected. The reason why Corsica suffered from low levels of industrial R&D is that the industrial structure is mostly composed of traditional companies. This is reinforced by the industrial structure of Corsica, mainly made up of small companies, which, in France, do not traditionally play a major role in terms of R&D activity.¹⁰

¹⁰ N. Levratto (2002), *Les problèmes et les politiques de développement en Corse*, *Région et Développement*, no. 15.

3 Regional economic structure

3.1 Description of the economic structure

3.1.1 The characteristics of the productive structure of the Corsican economy

Over the last 20 years, Corsica has not succeeded in catching up with the national economy. Corsica ranks last of the French regions and there remains a 20% gap in terms of GDP *per capita* compared to the national average. Comparing GDP *per capita* in 2004, Corsica's was EUR 20 918, below the French average of EUR 24 800 and the EU-25 average of EUR 22 300.¹¹ Corsica ranks last of all the French metropolitan regions¹² with a GDP of EUR 3.3 billion in 1990 and EUR 5.8 billion in 2005 — 0.33 and 0.34% of French GDP respectively. Corsica's average annual growth rate for GDP per capita from 1990 to 2005 (3.2%) slightly exceeded that of France (3.0%).

As in most European regions, the service sector is prominent in Corsica. In terms of value-added, over the period from 1995 to 2003, the Corsican productive structure remained unchanged, with the tertiary sector increasing from 82% to 84% of total value added, the secondary sector 14% to 15%, and agriculture about 2-3%. Within services, retail trade is an essential sector in Corsica. Its value-added is increasing by 6.7% a year since 1993. Supermarkets account for 40% of the turnover of retail trade (the share remained the same for 10 years). Tourism is also a cornerstone of the Corsican economy. Tourism is not very important in absolute numbers,¹³ but it represents 10% of the total value-added of Corsica. Foreigners account for one fourth of tourists in Corsica.

A characteristic of Corsica is the weak diversity of its economy, which is strongly dominated by a small number of sectors of activity, namely tourism and trade. In 2004, the total number of local companies was 17 578 — which is less than 1% of the French total.¹⁴ In terms of specialisation, because of the weight of tourism in the economy, the most prominent sector was 'wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods', accounting for 34.5% of the number of units, second was 'hotels and restaurants', representing 19.1%, and third 'real estate, renting and business activities' at 17.9%. Over the period from 1996 to 2004, the main changes were that the construction sector dropped almost 5 percentage points while 'real estate, renting and business activities' gained 3 percentage points. Compared with France, the only feature that stands out is the respective size and evolution of the hotel sector in Corsica, much larger (twice as large as in France, at 19%) and more stable over the period.

Figures in terms of numbers of units are insufficient and need to be complemented with employment figures. The major differences are the following. The industrial sector is half as large in Corsica, accounting for about 12% of the total compared with 24% in France, while the service sector is almost 20% larger in Corsica compared with France (83% vs. 70%). This confirms the picture already observed above in terms of value-added, for instance.

¹¹ Eurostat (2005), *L'Europe en chiffres — Annuaire 2005*.

¹² I.e. excluding overseas territories.

¹³ The volume of tourism can be measured by the number of nights slept at hotels. Corsica accounts for 1.3% of total nights compared with 36% for Ile de France and 11% for PACA. Sources: INSEE, Direction du tourisme, partenaires régionaux (DRT, CRT, CDT).

¹⁴ Eurostat website.

3.1.2 Systemic characteristics of the region

The French competitiveness clusters programme was launched in 2005 with 67 clusters¹⁵ selected after a call for proposals. Corsica did not propose a cluster as such but the region is part of the inter-regional cluster 'CAPENERGIES' established jointly with the PACA region. As with the other clusters created following the governmental measure, the core objective is to strengthen the economic and technological potential of PACA¹⁶ and Corsica while making use of the scientific and industrial potential of the region.

This cluster therefore focuses on “energies for the future with zero greenhouse gas”. The main R&D and innovation themes to be dealt with concern wind power, solar energy, hydraulic energy, hydrogen and biomass, nuclear fusion and fission. In 2005 the National Agency for Research (ANR) funded 12 projects amounting to EUR 9.3 million.¹⁷ In 2006, the cluster's Executive Board certified 48 projects for EUR 62 million.¹⁸

Active members add up to 100 enterprises, of which 80% are SMEs. 20 Research centres and 12 Training centres are also associated. The operational budget for year 2006 was EUR 523 000¹⁹.

Part of CAPENERGIES' strategy is to develop common actions with other French clusters specialised in energy such as 'Pôle Derbi' (Languedoc-Roussillon), 'Pôle TENERDIS' (Rhône Alpes), 'Pôle Mer' and 'Pôle Gestion des Risques' (PACA). A first inter-cluster project — between CAPENERGIES and 'Pôle Gestion des Risques' — has been certified.

In 2006, the University of Corsica was the only Corsican organisation that was involved in research projects funded by CAPENERGIES. The University is participating in four projects (out of 48 in total), two as partners (on photovoltaic and solar energy) and two as project manager (on recovery of rain water and solar energy and on the impact of renewable energy on Corsica's electricity grid).

The Technological Development Network (RTD) provides assistance to SMEs that are unfamiliar with the innovation process. It helps them to identify their technological needs and find the necessary competences to do so. In addition, the RDT aims at informing and advising SMEs about the various modes of public intervention. The Network gathers together 1 700 technology advisers in France, working with public or both private and public agencies specialised in Technology Transfer and Industrial Development, such as CRITT, CCI, technical centres, DRIRE, DRRT, OSEO, and regional councils. Each region has its own RDT, and so has Corsica.²⁰ As it is an umbrella organisation, this is the entry point to all organisations involved in promoting innovation in Corsica. About 40 organisations operating on the Corsican territory are part of this network.

3.1.3 The Corsican economy in the international context

Corsica is the least export-intensive region in France. Its distance from the French mainland creates 'distortions' in the continuity of the French territory. As of 1976, the French government

¹⁵ Government initiative gathering together enterprises, training centres and public and academic research organisations specialised in specific technologies at a regional or inter-regional level.

¹⁶ PACA stands for Provence-Alpes Côte d'Azur.

¹⁷ 5 projects on energy in the construction sector, 3 projects on hydrogen, 2 projects on bio-energy, 1 project on solar and photovoltaic energy and 1 on CO2 storage.

¹⁸ 19 on biomass, 6 on fusion, 6 on MDE, 3 on Hydraulic energy, 7 on solar energy, 3 on wind power, 2 on fission and 2 cross-cutting projects.

¹⁹ Government: EUR 180 000; Self-funding: EUR 133 000; Membership fee: EUR 50 000; 'Pays d'Aix' community: EUR 20 000; Regional council: EUR 40 000; Departmental councils: EUR 58 000; Marseille-Provence Metropolis: EUR 10 000; ADEC: EUR 25 000.

²⁰ <http://rdt-corse.org/>.

introduced a regulation — the ‘territorial continuity’ principle — aiming at compensating for the (estimated) ensuing handicaps. Opponents consider that this intensifies the handicap instead, by encouraging ‘fake’ exports only, i.e. exports to mainland France.

Over the period between 2003 and 2005 Corsica imported about 8 times more than it exported.²¹ However, the trade deficit fell (in terms of goods only) from EUR 130.3 million in 2003 to EUR 100.8 million in 2005. As a percentage of GDP, the deficit fell from -2.4% to -1.7%, an improvement of 0.7 of a percentage point. The manufacturing trade deficit continued to fall in the first three quarters of 2006, to EUR 62 million.

N. Levratto (2002) noted that 87% of Corsican employees are employed by companies whose headquarters are located in Corsica. The rate of autonomy is outstandingly high. On the other hand, only 2% of employees employed by companies with headquarters in Corsica work outside the island. These two factors point to a region that is economically autonomous.²²

3.1.4 The local financial market

The key support agency is ADEC (Economic Development Agency of Corsica). ADEC offers a whole range of regional financial support in tune with project holders’ needs.

ADEC’s regional financial support tools have been developed in connection with changes and consequent re-organisation by the Corsican regional authorities. ADEC has drafted a roadmap for developing financial instruments, aiming at strengthening and facilitating the capitalisation of small and very small Corsican firms. ADEC’s executive board’s proposals were then submitted to the Regional Assembly of Corsica. The suggested plan aimed to allow the emergence of specific structures to which the Corsican regional authorities should financially contribute either via operational funding or via a specific regional intervention fund.

The creation of these financial instruments was facilitated by close collaboration between the Corsican regional authorities and the Caisse des Dépôts et Consignations,²³ which also contributes to funding.

As a result of this process and associated cooperation, the following types of support are now offered:

- equity stakes
- loan grants
- loans without interest and/or guarantee
- bank loan guarantees.

In addition an umbrella organisation called GRIF, Groupement Régional des Instruments Financiers, was created. GRIF is an informal organisation created jointly by ADEC and the Caisse des Dépôts et Consignations. GRIF aims at ensuring maximum consistency between various tools (and hosting organisations) and creating synergy between the project holders’ actions, through constant control and dissemination of information. Table 21 at annex provides details of the financial support instruments.

²¹ Imports and exports are of goods only, excluding transport between Corsica and mainland France.

²² N. Levratto (2002), *Les problèmes et les politiques de développement en Corse*, *Région et Développement*, no. 15.

²³ The Caisse des Dépôts is a state-owned financial institution that carries out public-interest missions on behalf of France’s central, regional and local governments.

3.2 Policy context

3.2.1 Policy objectives

For years, the main national and regional policy objectives for Corsica have been to enable the Corsican economy to catch up with the French metropolitan regions. The focus has been put on the implementation of infrastructure, both material and immaterial.

The Corsican regional authorities, the State and the European Union have been making substantial efforts to develop infrastructure in Corsica. In recent years, the strategy was to continue to improve the Corsican infrastructure, with a focus on the diffusion of ICT in relation with immaterial infrastructure. At the end of 2007, 90-95% of Corsican territory will have broadband coverage, via ADSL, WiFi or WiMax.

In spite of the improvement in ICT infrastructure, Corsica suffers in general from lesser diffusion of the new technologies. In particular, company use of the Internet stands at 78%, compared with 93% on average in France.

The foundations of regional policy are set out in three programming documents, Corsica's regional development plan (PADUC), the State-Corsica Plan Contract and the Single Programming Document (DOCUP) co-signed by the EU, the State and the region. All three are articulated around the same objective of developing regional infrastructures.

The regional development plan²⁴ has been the foundation of regional policy since 1993. Long-term objectives (15-20 years) were set in 1993 with two main priorities:

- modernisation of the national road network;
- development of non-polluting infrastructure (notably household waste).

PADUC's priorities were updated in 1999 to include the following new actions:

- priority given to structuring investment to enlarge the market for local enterprises and create new activities out of the new investment;
- creation of a dynamic for opening the territory by facilitating information circulation and the development of exchanges to foster innovative projects;
- strengthening the economic landscape by rationalising financial structures in order to build projects on sound foundations;
- ecosystem preservation.

The overall budget for Corsica for 2006 is EUR 636 million. This budget reflects the emphasis on infrastructure development, which represents two thirds of budget priorities (rail and road networks: EUR 148 million; ports and airports EUR 14.5 million, broadband Internet access: EUR 8.7 million).²⁵ It is worth noting that since 1992, the regional budget has quadrupled. This increase has directly benefited the road network, the environment and agricultural development (see Table 22).

3.2.2 Policy instruments

The development of Corsican economic potential requires support for companies in order to generate new activities and stimulate exports.

²⁴ PADUC: Plan d'Aménagement et de Développement Durable de la Corse.

²⁵ Collectivité territoriale de Corse (2005), *Budget primitif pour 2006*.
http://www.corse.fr/documents/moyens/rapport_Bp2006%20definitif.pdf.

The objectives of the State and of the Region are mostly to encourage companies to increase investment, both material and immaterial. In order to compensate for the difficulties related to the insularity of Corsica and to generate a sustainable cycle of growth, the French government, in agreement with the European Commission, set up the Corsican Free Zone in 1996.

According to N. Levratto (2002), there is no evidence of the impact of this measure on investment. She argued that the Free Zone has only created pecuniary effects, essentially visible on company treasuries, without generating observable change in the productive structure or in R&D activity.²⁶ This, along with the fact that the Research Tax Credit is practically unused in Corsica, gives evidence that fiscal measures are definitely not sufficient to generate economic development in Corsica, nor to increase private R&D investment.

Regarding European funds allocated to Corsica under Objective 1, overall funding has doubled since 1994 (see Table 23).

The Single Programming Document 2000-2006 considers the issue of the funding of companies as a priority and sets out four policy instruments:

- a regional guarantee fund which, together with the additional amount from the Corsican regional authorities and European Community funds, would change the share usually guaranteed from 40% to 60%-70%;
- a capital-investment company aiming to reinforce the capital stocks of the companies through capital holding and additional funding from the ERDF;
- a local initiative platform aiming to award interest-free loans; this measure could benefit from additional funds from the ERDF;
- the Association for the Right to Economic Initiative (ADIE), a credit measure for long-term unemployed persons who lack access to bank credit and wish to set up a company.

In order to stimulate competition of industrial SMEs at regional, national and international levels, Corsican companies can receive subsidies for material and immaterial investments. These subsidies focus on priority access to information and communication technology and technology transfer on the environment and sustainable development policies.

Another important issue for Corsican companies is access to qualified staff. To facilitate such access, they may receive grants for the recruitment of qualified staff, in particular engineers or export managers.

The current Single Programming Document also provides for facilities for the creation of new companies and for companies willing to move to Corsica, mainly through the creation of industrial activity zones, and the development of business incubators.

²⁶ N. Levratto (2002), *Les problèmes et les politiques de développement en Corse*, *Région et Développement*, no. 15.

Exhibit 2: Effects of policies complementary to RTD instruments on Corsica's R&D capacity

Policy Areas	Policies complementary to RTD instruments affecting policy area*	Effects on R&D capacity of the region
Creation of an innovation friendly environment	Development of ICT infrastructure	Diminishing the effects of insularity. Connecting Corsica with the other Mediterranean areas.
Development of human capital	The Territorial Collectivity was given a specific fiscal status in order to increase private investment.	The Free Zone status given to Corsica did not have an impact on their actual level of investment, including investment in R&D.
Knowledge and technology transfer to enterprises	Implementation of <i>ad hoc</i> structures aimed at providing regional companies with research and innovation services.	Technology transfers mostly concerned agro-food and agriculture.
Financial R&D measures for the private sector	The Research Tax Credit is almost unused by the regional companies.	

[*Examples of such policies are the fiscal, industrial, regional, educational, labour, trade and competition policies.]

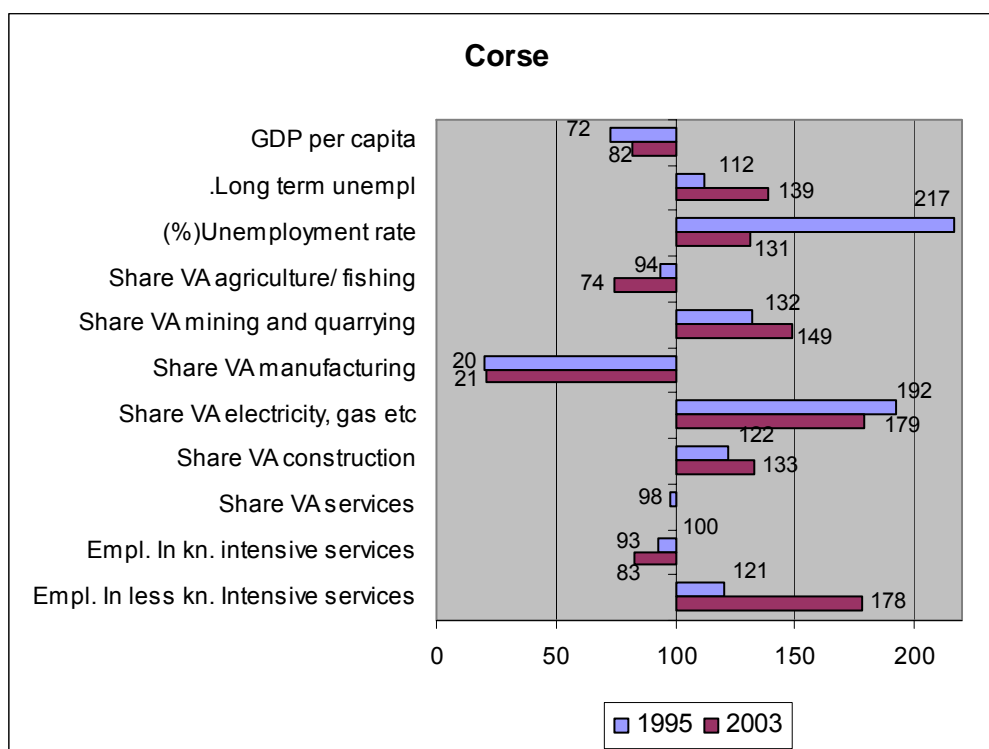
3.3 Conclusions

The main priorities of regional and national policies in Corsica were mostly aimed at supporting the economic development of the island. In addition to European funds, the State made (and is still making) outstanding efforts. Funding *per capita* distributed by the State is significantly higher in Corsica than anywhere else in the metropolitan territory.

During the 1990s, the main strategy adopted by the State and the Corsican regional authorities to sustain economic development was to develop enabling infrastructures. In recent years, the strategy was to continue to improve the infrastructure, with a focus on the diffusion of ICT in relation with immaterial infrastructures. The strategy was also to increase investment and to improve enterprises' access to capital. The impact of this measure on R&D investment is, however, limited.

Corsica is still one of the poorest regions in France with GDP *per capita* about 20% below the country's average. The gap has slightly decreased over the period as GDP per capita has risen by 10 percentage points.

Summary Graph 2: Comparison of Corsica's economic structure with the economic structure of France



Unemployment levels remained higher than France and EU averages for the entire period after 1995, corresponding to between 2 and 3 times the French average, though steadily catching up. Over the last quarter of 2006 the unemployment rate in Corsica was about 9.4%, as compared with 8.6% for France and 7.9% for EU27. Long-term unemployment is also quite high and has deteriorated throughout the period, from 12% higher than France's average to 39% higher.

Corsica is not an industry (manufacturing)-driven economy; the share of added value in manufacturing corresponds to about 20% of that of France all over the period. However, the construction sector performs quite well when compared with France's average and the situation has improved (from 22% above the French average to 33% above in 2003). The share of added value in services was similar to that of France in 2003. At the same time, the region is dominated by low-knowledge-intensive, low-technology sectors such as agriculture and tourism with low innovation performance, and extremely low private investments in R&D.

4 Conclusions

4.1 Assessment of the RIS

The Corsican innovation system is extremely atypical of the regional innovation systems of France. However, that is not exactly surprising since the island is an extremely peculiar region in other socio-economic respects. Tourism and services play a major role, while the related potential innovations appear to be low-knowledge-intensive and extremely complex to measure. The innovation performance of Corsica is the lowest of France. It should, however, be noted that a great deal of research policy efforts have been made in recent years, aimed at better structuring the RIS and boosting research-industry links. As the example of Corsica's participation in a competitiveness pole illustrates, synergies with the rest of the French territory in terms of innovation are becoming a key priority.

Corsican research infrastructure is heavily dominated by the public sector. To be more specific, research in Corsica is very much carried out by the higher education sector. The very weak investment in R&D by industrial sectors is worthy of note. The private sector is concentrated on low-tech activities and services such as tourism, agriculture, transport services, and construction. Knowledge creation capacity is very low as reflected in R&D expenditure levels. Knowledge diffusion capacity is improving but also remains low.

Regional financial competences are getting better although still low. The regional authorities have designed and implemented interventions (e.g. fund for funds, guarantee schemes) that could reduce the risk for existing private funding mechanisms.

RTDI governance capacity has also improved in recent years and substantial investments have been made in both R&D and knowledge infrastructures and in technology parks or technology transfer centres.

On the whole, the Corsican RIS is back on the right track and a very important catching-up process is under way. Policy documents analysed show that the gap analysis is now clear, as is how this catching-up should be done. According to our analysis, most importantly, there is an on-going 'normalisation process'. Indeed, Corsica, together with most R&D and innovation actors, is adopting methods and policies that have proven their effectiveness elsewhere in the territory.

In conclusion, the success of RTD policies, and more generally of policies affecting RTDI, strongly depends on the capacity of the industrial structure to adopt knowledge created by public research actors. To date, this is the weakest link in the Corsican RIS.

Exhibit 3: Strengths and weaknesses of Corsica's innovation system

	Strengths	Weaknesses
Knowledge creation capacity	<i>Both at policy and research & innovation levels, structuring & synergy efforts are being made.</i>	<i>R&D expenditures are weak. Research is public HEI research mostly.</i>
Knowledge diffusion capacity	<i>Participation in competitiveness clusters together with other French regions may improve collaboration and learning capacities.</i>	<i>University-industry links can and still should be improved.</i>
Knowledge absorption capacity	<i>The University of Corsica has set priority multidisciplinary projects on specific themes.</i>	<i>Extremely weak. May be the weakest point of Corsica's RIS. Lowest rate of bachelor graduated locally employed.</i>
Interactions of main actors		<i>Weak but improving. SMEs are not sufficiently connected with institutional support network.</i>
RTD governance capacity	<i>Consensual construction of the research and innovation priorities.</i>	
Knowledge vs. economic specialisation	<i>Efforts are being made to make knowledge and economic specialisation consistent with agro-industry, maritime industry, identity and humanities.</i>	<i>Knowledge creation is not yet coherent with the economic specialisation of the region. Innovation in services and tourism is not developed enough.</i>
Economic Structure		<i>The Corsican economy is public- and tourism-sector based. Innovation is not developed.</i>

4.2 Assessment of policies

Policies, both national and regional, are mostly aimed at enabling Corsica to catch up with the national averages, in terms of GDP and economic development. As such, the focus is on providing Corsica with infrastructure that may help create an environment favourable to entrepreneurship. Corsican companies display unusual structural characteristics in comparison with their French counterparts, such as a low capital intensity. In order to increase Corsican companies' investment (both material and immaterial), the State gave Corsica a special status as a 'Free Zone'. As already noted, the impact on companies' investment effort, if any, is very small.

Substantial efforts have been made by the public authorities on research and technology transfers from the public research base to the industrial sector. Firstly, the research base was reinforced. Research priorities were identified and highly supported: agriculture, agri-food, environment and energy. As a matter of fact, Corsican public actors' research activities on environment and energy display strength worthy of note. To give an example, these actors participate in national research and innovation projects funded in the "CAPENERGIES" Competitiveness Cluster. Second, infrastructure aimed at facilitating the diffusion of knowledge, including the CRITTs, has been developed since the mid-1990s. Implementation was effective, but there are problems that have to be overcome.

In the conclusion of the mid-term evaluation of “research and technological transfers” under the State-Corsica Plan Contract 2000-2006, the following actions are recommended:

- technology transfer must be better targeted;
- technological and financial support must be better adapted to companies’ needs;
- structures in charge of technology transfer must react more quickly;
- efficiency of the use of public money must be improved.²⁷

Exhibit 4: Public Policy vs. Strengths and Weaknesses of RIS

<i>[S&Ws from Exhibit 3]</i>	Effective approaches <i>[only measures which appear to have a significant contribution to facing the S&Ws are presented]</i>	Failures <i>[only measures which appear to have a significant negative effect or failed to address effectively the S&Ws]</i>
Strengths		
<i>Participation in competitiveness clusters together with other French regions may improve collaboration and learning capacities</i>	<i>The University of Corsica is strongly involved in collaborative projects</i>	
Weaknesses		
<i>R&D expenditures are weak. Research is public HEI research.</i>		<i>Fiscal measures did not succeed in increasing capital and R&D investment of local firms</i>
<i>University industry links can still be improved</i>		<i>Private companies, in particular SMEs, are not sufficiently innovative.</i>
<i>Low rate of bachelor graduated locally employed</i>		<i>In spite of public efforts, the situation has not improved so far.</i>

4.3 Policy challenges

Given the structural characteristics of its economy and associated RIS, Corsica has to make clear choices concerning the use of public money. The Corsican RIS is still too dependent on public funding. This issue has been very much debated in public arenas in recent years and has already begun to be tackled. There are two consequences for RTDI policy challenges.

The first concerns policy makers’ ability to radically modify private companies’ mentality as regards their economic activity. Private companies are mostly SMEs, or even micro enterprises, in traditional sectors. Most of the time, they suffer from a lack of capital and significant under-investment. Efforts must be continued to encourage companies to change their business behaviour. Companies’ must continue to be made more aware of the role of material investment, R&D investment and human capital in their economic development.

Secondly, since tourism plays a major role in the local economy, innovation and research capabilities in these fields must continue to be developed. The RDTI orientation is obvious, and CAPENERGIES is designed to produce substantial structuring effects. However, identifying and mobilising key private actors is still problematic. In this perspective, a great deal of effort still has to be made both in terms of knowledge diffusion capacity and, notably, in terms of knowledge absorption capacity. This is related to the capacity of policy makers to explore fields that could support the economic development of the region.

²⁷ Inno TSD (2004), *Evaluation de la thématique recherche-transfert de technologies du CPE CTC Corse 2000-2006*

Concerning the road to follow, the mid-term evaluation of the “research and technological transfers” of the State-Corsica Contract Plan for 2000-2004 argued that there are three options:

- To continue to base the strategy on the two fields of agriculture/agri-food industry and the environment. The former axis corresponds to the current needs of the Corsican economy whereas the latter consists of developing a new competence for the future.
- To concentrate efforts on the environment in order to embed Corsica within national and European networks.
- To develop new research activities, such as multimedia and exploitation of non-food products (aromatic essences or biomass).

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Annex 1: Definition of policy mix typology

- **Improve R&D governance capacity.** Technical assistance type funding used by public authorities, regional agencies and public-private partnerships in developing and improving policies and strategies in support of R&D investments. This could include changes in the organisation of decision making, national and regional foresight, measures for improvement of evaluation etc.
- **Creation of an innovation friendly environment.** This category covers a wide range of actions which seek to improve the overall environment in which enterprises, universities and research organisations innovate. In this category the following measures are included:
 - Regulation and initiatives addressing intellectual property rights either by improving legislation in cases of commercialisation of public or collaborative research or by covering protection costs.
 - Direct or indirect support of spin-offs and New Technology Based Firms (NTBFs). Direct support includes public financial schemes such as pre-seed and first stage capital, while indirect measures include funding of incubators, training related to entrepreneurship, etc.
- **Development of human capital.** This category includes measures aiming at upgrading human resources in R&D and innovation-related activities, such as helping science and technology graduates to follow research and innovation-oriented careers; training of researchers in enterprises or research centres; intra- and international mobility of scientists; curriculum development in higher education aimed at developing science and technology; orientated under- and post-graduate courses etc.
- **Networking, co-location and clustering measures.** Policies under this category focus on promoting R&D cooperation, networking and interaction. Measures promoting co-location of industrial and scientific organisations (e.g. innovation poles), funding for cluster infrastructure and activities geared to technology and R&D are some of possible measures in this category.
- **Knowledge and technology transfer to industry.** This category includes policies directly or indirectly supporting knowledge and technology transfer from universities and public research organisations and commercialisation of public research results. Direct support includes aid schemes for utilising technology-related services or for implementing projects transferring technology from the public or private sector to the private sector. Indirect policies include development of infrastructures facilitating technology transfer such as technology parks, innovation centres, university liaison and transfer offices.
- **Research cooperation between public research organisations and the private sector.** Measures supporting collaborative research projects and development of common research infrastructures (for use by private and public sector) are included.
- **Support of public research:** Measures under this category include:
 - Public investments in research infrastructure and direct funding of public R&D, e.g. setting up new infrastructures, or supporting centres of excellence;

- Grants for R&D projects implemented in universities and other public research organisations;
- Regulatory changes and incentives for universities and other public research organisations which encourage the commercialisation of research results and collaboration with industry.
- **Financial R&D measures for the private sector.** Two main categories of measures are included:
 - **Direct and indirect financial incentives for R&D in the private sector.** Direct measures include direct public funding of R&D in the private sector, e.g. grants, conditional loans. Indirect measures include tax incentives for firms to undertake R&D activities.
 - **Catalytic financial incentives for R&D in the private sector.** Includes instruments facilitating the access of R&D performers to external private-sector sources of finance. Typical measures of this type are measures encouraging the use of *risk capital* (e.g. venture capital funds) for both R&D and innovation-related activities and the *loan and equity guarantee measures*.

Annex 2: Description of key indicators used in Summary Graphs 1 and 2

Period of coverage: Two years are used, i.e. 1995 and 2004 or the closest possible years

Index: Country=100

Source: Eurostat, 2006

Summary Graph 1: Key indicators of Corsica's knowledge base development in comparison to France

1. Total intramural R&D expenditure as a percentage of GDP
GERD
BERD
GOVERD
HERD
PNPERD
2. R&D personnel as a percentage of total employment
All sectors
Business
Government
Higher education
Private non-profit
3. Human Resources in S&T as a percentage of labour force
4. Patent applications at EPO per million inhabitants
5. Students in tertiary education (ISCED 5+6) per thousand inhabitants.
6. Lifelong learning: participation of adults aged 25-64 in education and training as a percentage of population

Summary Graph 2: Key indicators on Corsica's economic structure and development

1. GDP per capita at current market prices.
2. Long-term unemployment rate (in total unemployment).
3. Unemployment rate (%).
4. Value-added at basic prices (EUR million): Share (%) of sectors in total.
Agriculture/fisheries
Mining and quarrying
Manufacturing
Electricity, gas and water supply
Construction
Services (excl. extra-territorial organisations and bodies)
5. Annual data on employment in technology and knowledge-intensive sectors at regional level: percentage of total employment
High technology manufacturing: NACE Rev. 1.1 codes 30. 32 and 33
Medium/high technology manufacturing: NACE Rev. 1.1 codes 24. 29. 31. 34 and 35
Medium/low technology: NACE Rev. 1.1 codes 23 and 25 to 28
Low technology: NACE Rev. 1.1 codes 15 to 22 and 36 to 37
Total knowledge-intensive services: NACE Rev. 1.1 codes 61. 62. 64 to 67. 70 to 74. 80. 85 and 92
Knowledge-intensive high-technology services: NACE Rev. 1.1 codes 64. 72. 73
Total less knowledge-intensive services: NACE Rev. 1.1 codes 50. 51. 52. 55. 60. 63. 75. 90. 91. 93. 95 and 99

Annex 3: Tables and Figures

Table 2 Number of Universities per region in France

Region	Number	Name of universities
Nord-Pas-de-Calais	6	Lille 1. Lille 2. Lille 3. Littoral Cote d'Opale, Artois, Valenciennes
Alsace	4	Strasbourg 1. Strasbourg 2. Strasbourg 3. Mulhouse
Lorraine	4	Metz, Nancy 1. Nancy 2. INPL
Champagne-Ardenne	2	Reims, Troyes
Picardie	2	Amiens, Compiègne
Haute-Normandie	3	Rouen, Le Havre, INSA Rouen
Basse-Normandie	1	Caen
Bretagne	4	Brest, Bretagne sud, Rennes 1. Rennes 2
Pays de la Loire	3	Nantes, Le Mans, Angers,
Ile de France	28	Paris 1. Paris 2. Paris 3. Paris 4. Paris 5. Paris 6. Paris 7. Paris 8. Paris 9. Paris 10. Paris 11. Paris 12. Paris 13. Marne la Vallée, Cergy-Pontoise, Versailles St Quentin, Evry Val d'Essonne, CNAM, EHESS, EPHE, ENS, École Centrale Paris, ENS Cachan, IEP Paris, INALCO, Institut de Physique du Globe, Observatoire de Paris, École nationale des chartes
Centre	2	Orleans, Tours
Bourgogne	1	Dijon
Franche-Comté	2	Besançon, Belfort-Montbéliard
Poitou-Charentes	2	Poitiers, La Rochelle
Limousin	1	Limoges
Auvergne	2	Clermont 1. Clermont 2
Rhône-Alpes	12	Lyon 1. Lyon 2. Lyon 3. St Etienne, Grenoble 1. Grenoble 2. Grenoble 3. INPG, Chambéry, ENS Lyon, ENS Lettres et Sciences Humaines, INSA Lyon
Aquitaine	5	Bordeaux 1. Bordeaux 2. Bordeaux 3. Bordeaux 4. Pau
Midi-Pyrénées	5	Toulouse 1. Toulouse 2. Toulouse 3. INPT, INSA Toulouse
Languedoc-Roussillon	4	Montpellier 1. Montpellier 2. Montpellier 3. Perpignan
Provence-Alpes-Côte-d'Azur	6	Nice, Aix-Marseille 1. Aix-Marseille 2. Aix-Marseille 3. Avignon
Corsica	1	Pascal Paoli
DOM (overseas departments)	2	Antilles-Guyane, La Réunion
TOM (overseas territories)	2	Nouvelle Calédonie, Polynésie Française

Source: M.E.N.E.S.R. 2006, <http://www.education.gouv.fr/cid2600/liste-des-universites.html>

Table 3 List of Higher Education Institutes in Corsica

	Name	Location	Area
1	University of Corsica (Università di Corsica Pascal Paoli or Université de Corse)	Corte	<ol style="list-style-type: none"> 1. Literature, Languages, Arts and Social sciences 2. Economics and management 3. Law 4. Sciences and Technologies 5. Sciences and Technology of Physical and Sporting Activities (STAPS) 6. Health
2	Higher Technology Institute (IUT) of Corsica (IUT di Corsica)	University of Corsica, Corte	New technologies of information and communication Biology Applied to Agroalimentary Environment and water Management & Business Administration Civil engineering
3	Faculty of Sciences and Technologies (Faculté des Sciences et Techniques, FST)	University of Corsica, Corte	Renewable energies Human genetic 3 research centres: IREM, EQUQL, SPE
4	<i>Doctoral school "environment and societies"</i>	University of Corsica, Corte	Forest fires Water management Renewable energies Natural resources Sustainable development Identities and cultures 3 research centres: SPE, BIM, CRESHS
5	<i>Institute of Business Administration, IAE of Corsica</i>	University of Corsica, Corte	Business administration Human resources International affaires
6	Institute for professor training of Corsica (IUFM, Institut Universitaire de Formation des Maitres de Corse)	Corte	Basic education Secondary education Higher education
7	Higher Engineer School of Corsica, (Ecole National Supérieur d'Arts et Métiers, ENSAM)	Bastia	Renewable energies
8	Higher Engineer School of Corsica, (Conservatoire national des arts et metiers, CNAM)	Bastia	Regional planning Chemistry Electronics Energy Data processing Mechanics Natural sciences Nuclear sciences
9	Business School (EGC — Ecole de gestion et de commerce)	Bastia	Business management Marketing Business creation Communication Economics
10	Preparatory classes to higher schools in Sciences and Technologies areas (Lycée d'État polyvalent Lætitia-Bonaparte)	Ajaccio	PTSI: Physics, technologies and engineering sciences PSI: Physics and engineering sciences PT: Physics and technologies

Sources: Technopolis France investigations

Table 4 List of Public and Private Research Establishments in Corsica

	Name	Location	Area
1	Institute of Research on Mathematics Training (Institut de Recherche sur l'Enseignement des Mathématiques, IREM)	FST, University of Corsica, Corte	Teaching of mathematics Didactic of mathematics Epistemology of mathematics History of mathematics
2	EQUEL, Littoral ecosystems	FST, University of Corsica, Corte	Marin ecosystems
3	National Institute for Agricultural Research, INRA Centre of Corsica	Two centres: the SRA in San Giuliano and the LRDE in Corte	SRA (Agronomic research centre): diversification of citrus fruits and Mediterranean fruits in collaboration with the CIRAD LRDE (Research Laboratory on Breeding Development): Breeding management and quality products
4	CNRS National Centre of Scientific Research, Centre SPE, physics systems for environment (<i>Doctoral school "environment and societies"</i>)	Two laboratories: one in FST, University of Corsica, Corte and the other in Ajaccio	Biomass, Energy Modelling and design of systems Mechanics of acoustic fluids
5	Laboratory of genetics and human biology (Laboratoire de génétique et de biologie humaine)	University of Corsica, Corte	Genetics of populations Phylogeny Pathologies in Mediterranean Genetic epidemiology
6	Research centre for the development of natural resources, CEVAREN	Vignola	Chemistry of aromatic and medicinal plants Biochemistry and animal physiology Geology Ecology
7	Centre IDIM Centre of Islands, of sustainable development of institutions in the Mediterranean region	University of Corsica, Corte	Biodiversity and environment Management of populations Notarial and patrimonial private law Public law: culture & local authorities History of the law and institutions (Corsica and Mediterranean and Arab countries) History of the political ideas Development economics Environmental economics Political Sciences: Mediterranean countries, especially islands and Arab countries Sciences of management
8	Research centre Corsica and the Mediterranean region CRCM	University of Corsica, Corte	Culture and environment in Corsica and Mediterranean
9	Laboratory of geology	University of Corsica, Corte	Sedimentary Geology Tectonic Environment Geodynamic
10	Centre BIM Centre for the Islander and Mediterranean Biodiversity (Doctoral school "environment and societies")	University of Corsica, Corte	Biodiversity
11	Research centre in Social and Human Sciences, CRESHS ((Doctoral school "environment and societies"))	University of Corsica, Corte	Territories and sustainable development Identities and cultures
12	Equip Models and Mediterranean ecology	University of Corsica, Corte	Parasites Invertebrates Vertebrate Ecology Hydrobiology Ultrastructure

Sources: Technopolis France investigations.

Table 5 Total intramural R&D expenditure (GERD) by sectors of performance in Corsica (1997-2003)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GERD	4.2	4.4	5.0	5.3	5.4	5.7	12.0	11.0	18.8	14.3	23.3	13.1	13.2
BERD	:	:	:	:	:	:	1.2	0.8	6.8	1.5	8.0	:	:
GOVERD	3.7	4.1	4.7	5.0	5.1	5.3	4.5	4.6	4.5	4.4	5.4	4.6	4.4
HERD	0.4	0.3	0.3	0.3	0.3	0.4	6.3	5.6	7.6	8.4	9.9	8.6	8.9
PNP	:	:	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat

Table 6 Percentage of total intramural R&D expenditure (GERD) by sectors of performance in France and Corsica (1997-2003)

		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Corsica	BERD	:	:	:	:	:	:	10.1	7.7	36.1	10.4	34.4	:	:
	GOVERD	89.6	93.4	94.0	94.2	94.2	93.6	37.7	41.8	23.7	30.8	23.1	34.7	33.0
	HERD	10.4	6.6	6.0	5.6	5.6	6.6	52.3	50.5	40.2	58.8	42.5	65.3	67.0
	PNP	:	:	:	:	:	:	:	:	:	:	:	:	:
France	BERD	61.5	62.5	61.7	61.8	61.0	61.5	62.5	62.3	63.2	62.5	63.2	63.3	62.6
	GOVERD	22.7	20.9	21.1	20.6	21.0	20.3	18.7	18.6	18.1	17.3	16.5	16.5	16.7
	HERD	15.1	15.3	15.8	16.2	16.7	16.8	17.4	17.6	17.2	18.8	18.9	18.9	19.4
	PNP	0.8	1.3	1.4	1.3	1.3	1.3	1.4	1.5	1.5	1.4	1.4	1.4	1.3

Source: Eurostat

Table 7 Number of students in Higher Education Institutes

	Corsica		France
	2003-2004	2004-2005	2004-2005 (thousand)
University	3 096	3 215	1 357.4
Higher Technology Institutes (IUT)	345	357	112.4
University institutes for professor training (IUFM)	422	378	83.6
Engineer Schools	0	0	67.3
Business Management schools	97	57	83.2
Social & Paramedical schools	262	330	122.5
Preparatory classes to higher schools	91	78	76.5
Sections for higher technicians	537	521	230.3
Other higher education institutions	256	193	134.9
Total higher education	5 106	5 129	2 268.1

Source: Ministry of National Education, Research and Technology

Table 8 RTDI intervention in structural funds 2000-2006

	RTDI interventions	TOTAL Structural funds
Obj. 1 Corse	2 151 964.10	188 324 405.00
Obj. 1 – Total Regional Ops	102 076 334.35	4 109 913 000.00
Corse RTDI % of Total	1.14%	100.00%
Total obj 1 RTDI/Total	2.48%	100.00%

Source: Strategic Evaluation on Innovation and the Knowledge Based Economy in relation to the Structural and Cohesion Funds, for the programming period 2007-2013. Country Report: France, DG REGIO

Table 9 **Number of Public and private researchers, 1999**

Regions	Public R&D		Industrial R&D	
	Number of re- searchers*	Research- ers/population**	Number of re- searchers***	Research- ers/population**
Corsica	270	10.4%	25	1%
France	71 385	12.3%	68 486	11.8%

Source: Territorial Collectivity of Corsica

*: Professor-researchers, researchers in public establishments in scientific and technologic areas, and engineers in public establishments in industrial and commercial areas

**.: per 10 000 inhabitants

***.: and engineers involved in R&D

Table 10 CIR beneficiaries per region, 2003

Region	Demanding firms	Of which subsidiaries	% of total	R&D Expenses in Keuros	% of total	Beneficiary	% of total
ALSACE	235	48	4.0%	181 136	1.6%	103	3.7%
AQUITAINE	191	46	3.3%	142 234	1.3%	102	3.7%
AUVERGNE	108	28	1.9%	35 924	0.3%	54	2.0%
BOURGOGNE	129	32	2.2%	76 715	0.7%	49	1.8%
BRETAGNE	264	72	4.5%	136 887	1.2%	125	4.5%
CENTRE	174	53	3.0%	229 633	2.0%	69	2.5%
CHAMPAGNE-ARDENNE	92	38	1.6%	53 369	0.5%	32	1.2%
CORSE	1		0.0%	318	0.0%	1	0.0%
FRANCHE-COMTE	116	37	2.0%	47 634	0.4%	46	1.7%
ILE-DE-FRANCE	1722	448	29.5%	7 898 873	69.9%	898	32.6%
LANGUEDOC-ROUSSILLON	182	12	3.1%	76 688	0.7%	119	4.3%
LIMOUSIN	62	23	1.1%	51 378	0.5%	26	0.9%
LORRAINE	160	35	2.7%	62 084	0.7%	63	2.3%
MIDI-PYRENEES	265	55	4.5%	487 916	4.3%	146	5.3%
NORD-PAS-DE-CALAIS	246	79	4.2%	150 668	1.3%	97	3.5%
BASSE-NORMANDIE	74	14	1.3%	30 847	0.3%	32	1.2%
HAUTE-NORMANDIE	108	38	1.9%	127 257	1.1%	37	1.3%
PAYS-DE-LA-LOIRE	332	113	5.7%	184 315	1.6%	132	4.8%
PICARDIE	127	51	2.2%	109 688	1.0%	41	1.5%
POITOU-CHARENTES	78	13	1.3%	25 883	0.2%	51	1.9%
PROVENCE-ALPES-COTE D'AZUR	342	50	5.9%	317 563	2.8%	217	7.9%
RHONE-ALPES	811	200	13.9%	853 974	7.6%	302	11.0%
REUNION	14	2	0.24%	3 836	0.0339%	10	0.36%
TOTAL	5 833	1 487	100%	11 304 820	100%	2 752	100%

Source: Bilan CIR 2003. the French Ministry in charge of Education, Higher education and Research

Table 11 Regional Division of the number of R&D personnel in Public Research Services Establishments, 1998-2003

Full time Equivalent	1998				2000				2002				2003			
	Researchers	Grant holders	Others	Total	Researchers	Grant holders	Others	Total	Researchers	Grant holders	Others	Total	Researchers	Grant holders	Others	Total
Ile-de-France	23 677	5 614	21 488	50 780	24 242	6 309	19 736	50 326	25 246	6 559	21 398	53 204	25 585	6 660	21 058	53 303
Champagne-Ardenne	532	56	186	774	565	54	215	834	587	66	239	891	592	71	250	913
Picardie	556	107	297	960	600	113	302	1 015	801	138	432	1 370	655	140	344	1 138
Haute-Normandie	727	123	316	1 166	795	140	378	1 313	831	147	445	1 423	834	145	472	1 452
Centre	1 359	257	1 240	2 857	1 446	289	1 264	2 999	1 555	330	1 423	3 308	1 554	322	1 380	3 256
Basse-Normandie	723	178	564	1 465	796	189	627	1 617	997	187	830	2 013	835	179	685	1 699
Bourgogne	743	193	633	1 569	793	197	662	1 652	820	200	714	1 734	799	204	666	1 668
Nord-Pas-de-Calais	2 157	534	1 182	3 873	2 320	570	1 309	4 198	2 450	550	1 503	4 503	2 502	574	1 506	4 582
Lorraine	1 769	447	1 487	3 703	1 883	481	1 431	3 794	2 023	485	1 595	4 102	2 039	538	1 579	4 155
Alsace	2 048	569	1 299	3 916	2 071	565	1 359	3 995	2 121	577	1 518	4 216	2 113	594	1 454	4 161
Franche-Comté	570	134	269	973	597	145	312	1 054	625	156	334	1 115	628	159	333	1 120
Pays de la Loire	1 821	374	1 332	3 527	1 959	426	1 355	3 760	2 082	472	1 549	4 103	2 046	471	1 557	4 074
Bretagne	2 404	536	1 871	4 811	2 672	569	1 929	5 164	2 711	647	2 161	5 519	2 737	641	2 189	5 567
Poitou-Charentes	877	200	671	1 748	942	188	727	1 856	960	211	774	1 945	977	230	783	1 990
Aquitaine	2 141	551	1 501	4 193	2 300	631	1 647	4 580	2 385	665	1 804	4 853	2 421	668	1 847	4 937
Midi-Pyrénées	4 274	1 010	2 673	7 957	4 483	1 074	2 700	8 256	4 797	1 121	3 024	8 941	4 739	1 137	3 004	8 880
Limousin	347	79	117	543	379	84	196	659	395	106	158	659	398	91	180	669
Rhône-Alpes	6 609	1 900	4 498	13 007	7 000	2 091	4 712	13 803	7 519	2 254	5 274	15 047	7 629	2 359	5 358	15 346
Auvergne	991	242	934	2 167	1 045	261	1 009	2 315	1 069	244	1 052	2 366	1 079	264	1 061	2 403
Languedoc-Roussillon	3 393	726	3 007	7 126	3 638	733	3 072	7 456	3 887	822	3 434	8 142	3 967	830	3 318	8 116
PACA	5 201	1 072	4 330	10 604	5 701	1 249	4 334	11 286	5 704	1 306	4 476	11 486	6 061	1 316	4 711	12 089
Corse	81	10	95	186	97	3	100	200	100	7	110	217	103	8	109	220
Régions d'outre-mer	697	21	1 054	1 772	800	34	1 081	1 921	1 087	47	1 074	2 209	1 149	50	1 084	2 283
Total Regions	63 698	14 933	51 044	129 675	67 124	16 395	50 454	134 053	70 751	17 296	55 321	143 369	71 442	17 652	54 928	144 023
Other (1)	1 662	1 863	5 993	9 518	2 310	1 770	7 296	11 375	1 843	1 235	5 954	9 032	1 751	1 299	5 750	8 800
TOTAL IN FRANCE	65 360	16 796	57 037	139 193	69 433	18 166	57 750	145 428	72 595	18 532	61 275	152 401	73 193	18 951	60 678	822

(1) Other: Defense & ISBL
Source: MENESR - DEP B3.

Table 12 Number of Students by level of education

	1999		2000		2001		2002		2003		2004	
	Corsica	France	Corsica	France	Corsica	France	Corsica	France	Corsica	France	Corsica	France
Tertiary programmes with academic orientation (ISCED 1997)	3321	1437616	3376	1431429	3496	1436793	3521	1430375	3531	1512508	3414	1543761
Tertiary programmes with occupation orientation (ISCED 1997)	1011	478957	998	489588	1070	500786	1148	502927	1126	508932	1185	515230
Second stage of tertiary education leading to an advanced research qualification (ISCED 1997)	212	95620	190	94327	144	94164	226	95877	235	97709	221	101309
Tertiary education (ISCED 1997)	4544	2012193	4564	2015344	4710	2031743	4895	2029179	4892	2119149	4820	2160300
Total (ISCED 1997)	54153	14415100	54191	14350552	54229	14292240	53671	14247289	53621	14350323	53660	14401428

Source: Eurostat.

Table 13 Number of R&D personnel by type of organisation, 1997-2003

Full Time equivalent	1997 (3)			2000 (3)			2002			2003		
	Firms	Administrations	Total	Firms	Administrations	Total	Firms ns	Administratio	Total	Firms	Administratio	Total
Ile de France	75 763	50 960	126 723	76 121	50 325	126 446	82 027	53 204	135 231	81 250	53 303	134 554
Champagne- Ardenne	1 413	741	2 154	1 523	834	2 357	1 701	891	2 593	1 902	913	2 815
Picardie	3 182	938	4 120	3 276	1 015	4 292	3 868	1 370	5 238	3 875	1 138	5 013
Haute-normandie	4 198	1 127	5 325	4 595	1 313	5 908	4 447	1 423	5 870	4 718	1 452	6 170
Centre	5 960	2 708	8 668	6 852	2 999	9 850	6 324	3 308	9 632	6 682	3 256	9 938
Basse-Normandie	1 473	1 431	2 904	1 954	1 613	3 567	2 075	2 013	4 088	2 096	1 699	3 795
Bourgogne	2 652	1 521	4 173	2 968	1 652	4 619	2 800	1 734	4 534	2 836	1 668	4 504
Nord Pas-de-	3 088	3 745	6 833	2 896	4 196	7 092	2 837	4 503	7 340	3 045	4 582	7 627
Lorraine	3 007	3 668	6 675	2 730	3 794	6 524	2 586	4 102	6 688	2 724	4 155	6 879
Alsace	2 978	3 828	6 805	3 374	3 995	7 369	3 952	4 216	8 169	3 936	4 161	8 098
Franche-Comt*	4 017	908	4 925	4 796	1 054	5 850	5 559	1 115	6 674	4 723	1 120	5 844
Pays-de-la Loire	4 428	3 331	7 760	5 543	3 777	9 320	5 469	4 103	9 572	5 683	4 074	9 757
Bretagne	6 178	4 582	10 760	7 124	5 229	12 353	7 096	5 519	12 615	7 279	5 567	12 846
Poitou-Charentes	1 364	1 690	3 054	1 321	1 834	3 156	1 758	1 945	3 703	1 707	1 990	3 697
Aquitaine	4 860	4 087	8 946	5 522	4 573	10 095	6 366	4 853	11 219	6 350	4 937	11 287
Midi-Pyrˆnes	7 061	7 754	14 815	9 234	8 256	17 490	11 271	8 941	20 213	12 687	8 880	21 567
Limousin	954	516	1 470	1 018	659	1 677	953	659	1 612	982	669	1 651
Rhˆne-Alpes	19 068	12 543	31 612	20 853	13 803	34 656	22 471	15 047	37 518	22 710	15 346	38 056
Auvergne	3 949	2 094	6 043	4 075	2 315	6 390	4 603	2 366	6 969	4 634	2 403	7 037
Languedoc- Roussillon	2 093	6 768	8 861	2 819	7 436	10 255	3 161	8 142	11 303	3 340	8 116	11 456
PACA (1)	8 585	10 867	19 452	9 076	11 292	20 367	9 739	11 486	21 225	10 079	12 089	22 168
Corse (1)	41	178	219	18	200	218	154	217	371		220	220
Rˆgions d'outre- mer (1)		1 677	1 677		1 913	1 913		2 209	2 209	18	2 283	2 301
Total Regions	166 310	127 662	293 972	177 688	134 078	311 766	191 217	143 369	334 586	193 256	144 023	337 278
Other (2)		9 490	9 490		11 377	11 377		9 032	9 032		8 800	8 800
TOTAL France	166 310	137 152	303 462	177 688	145 455	323 141	191 217	152 401	343 618	193 256	152 822	346 078

Source: MENESR - DEP B3

(1) Firms in Provence Alpes Cˆte d'Azur

(2) Defense, ISBL

(3) Methodological changes

Table 14 R&D personnel by sectors of performance (employment) and region, 1997-2001

		1997	1998	2000	2001
Business enterprise sector	EU (25)	1086440*	1126260*	1172615*	1201821*
	France	184167	184279	187411	195243
	Corsica	16	18	20	132
Government sector	EU (25)	375393*	376439*	365513*	357729*
	France	51594	50364	50808	48887
	Corsica	96	89	90	96
Higher education sector	EU (25)	1051635*	1100079*	1150601*	1178395*
	France	134295	137836	134953	138197
	Corsica	145	165	161	216
Private non-profit sector	EU (25)	27221*	28082*	27922*	28868*
	France	8622	8619	8437	8304
	Corsica	/	/	/	/
Total all sectors	EU (25)	2540689*	2630860*	2716651*	2766812*
	France	378678	381098	381609	390631
	Corsica	256	272	271	444

Source: Eurostat
(*): Eurostat estimate

Table 15 Total intramural R&D expenditure (GERD) by sectors of performance and region, 1991-2003

		1991	1995	1997	1998	1999	2000	2001	2002	2003
Business enterprise sector	EU (25)	/	78797.61*	87583.35*	92377.05*	101847.52*	109908.32*	116194.54*	119953.24*	120991.07*
	France	14378.921	16738.05	17217.469**	17519.519	18655.125	19348.42	20782.15**	21839	21646.182
	Corsica	/	/	1.21	0.845	6.8	1.49	8	/	/
Government sector	EU (25)	/	20709.79*	20826.14*	21892.6*	22469.86*	23313.22*	23451.84*	24146.17*	24478.08*
	France	5297.6	5761.231	5139.049**	5245.282	5357.058	5361.43**	5432.04	5709	5766.558
	Corsica	3.725**	5.057	4.533	4.611	4.47	4.42**	5.38	4.563	4.355
Higher education sector	EU (25)	/	25788.44*	28985.44*	30210.69*	32048.75*	34921.34*	37626.19*	40470.31*	41223.65*
	France	3527.622	4585.369	4794.712**	4954.593	5067.863	5804.36**	6217.29	6512.446	6692.93
	Corsica	0.433	0.302	6.289	5.574	7.57	8.42**	9.87	8.569	8.854
Private non-profit sector	EU (25)	/	869.06*	973.85*	1047.25*	1158.85*	1358.94*	1535.77*	1892.79*	1988.51*
	France	183.352	363.275	381.539	419.447	448.353	439.39	455.89	468	463.425
	Corsica	/	/	/	/	/	/	/	/	/
Total all sectors	EU (25)	/	126164.9*	138368.78*	145527.6*	157524.98*	169501.82*	178808.34*	186462.51*	188681.31*
	France	23387.509	27447.936	27532.768**	28138.856	29528.399	30953.6**	32887.37	34527.117	34569.095
	Corsica	4.158**	5.369	12.033	11.029	18.84	14.33**	23.25	13.132	13.209

Source: Eurostat
(*): Eurostat estimate
(**): Break in series

Table 16 Corsican R&D expenditure as percentage of French GERD

	1991	1992	1995	1998	2000	2003
Total all sectors	0.02%	0.02%	0.02%	0.04%	0.05%	0.04%
Business enterprise sector	N/A	N/A	N/A	0.00%	0.01%	N/A
Government sector	0.07%	0.08%	0.09%	0.09%	0.08%	0.08%
Higher education sector	0.01%	0.01%	0.01%	0.11%	0.15%	0.13%
Private non-profit sector	N/A	N/A	N/A	N/A	N/A	N/A

Source: own calculations based on Eurostat

Table 17 Number of patent applications

	Corsica	France	Corsica/France
1994	8	16039	0.05%
1995	9	15896	0.06%
1996	22	16400	0.13%
1997	15	16899	0.09%
1998	9	16795	0.05%

Source: INPI, National Institute for Intellectual Property.

Table 18 Patent applications to the EPO by priority year at regional level by IPC sections and classes

	1980		1990		2000		2003	
	Corsica	France	Corsica	France	Corsica	France	Corsica	France
Section A - Human necessities	0.0046	232.5	1.0146	695.8896	1.0047	1395.2565	0.0016	822.312
Section B - Performing operations; transporting	0.008	500.1667	1.0199	1078.1167	0.0046	1625.1861	0.001	869.6377
Section C - Chemistry; metallurgy	0.0075	376.6893	0.0084	851.0943	0.0031	1267.5698	0.001	535.5977
Section D - Textiles; paper	/	60.2	0.0016	104.1881	0.0004	84.8333	0.0001	49.0159
Section E - Fixed constructions	1.0019	102.1667	0.0045	258.0833	0.0017	318.8139	0.0014	177.4333
Section F - Mechanical engineering; lighting; heating; weapons; blasting	0.0022	306.3988	1.0128	584.4333	1.0022	701.4841	2.0014	528.4143
Section G - Physics	0.0021	375.6167	0.5084	834.8167	0.5024	1396.8817	0.002	723.9941
Section H - Electricity	0.0032	424,00	0.0067	821.6667	0.2537	1611.235	0.0017	842.6631

Source: Eurostat

Table 19 Corsica trade pattern

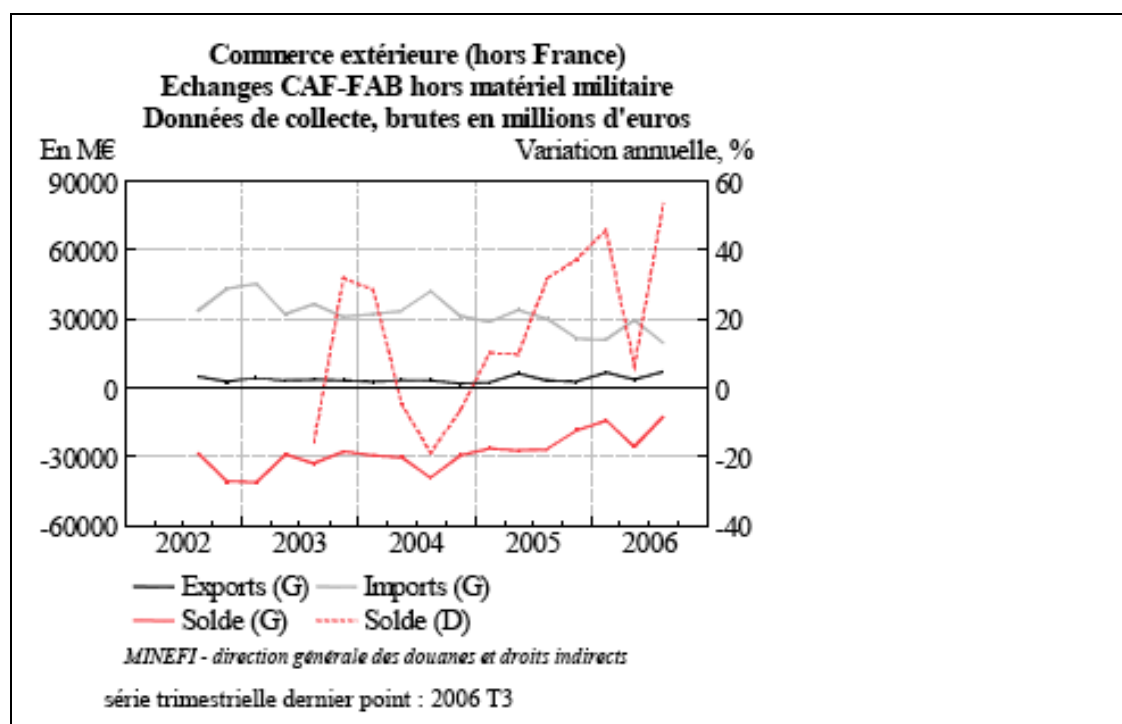


Table 20 Partners of the Technological Development Network of Corsica

Name	Standing for
ADEC	Corsican Economic Development Agency
ADEPA	Développement de la Productique Appliquée à l'économie (Consulting company specialising in industrial organisation)
ADIE	Association for the right to economic initiative
ARACT CORSE	Association for improving working conditions
ARIST	Scientific and technical information Agency
CCI d'ajaccio et de la Corse du Sud	Ajaccio and South Corsica Chamber of Commerce and Industry
CCI de Bastia et de la Haute-Corse	Bastia and Higher-Corsica Chamber of Commerce and Industry
Chambre de Métiers de la Corse du Sud	South-Corsica Chamber of Metiers
Chambre de Métiers de la Haute-Corse	Higher-Corsica Chamber of Metiers
DRCA	
DRCE Corse	Regional Directorate for Trade (Direction Régionale du Commerce Extérieur Corse)
DRIRE CORSE	
DRTEFT	Regional Directorate for work, employment and professional training (Direction Régionale Du Travail, De L'emploi Et De La Formation Professionnelle)
ENSAM de Corse	École Nationale Supérieure Des Arts Et Métiers
FUTURA Corse Technopole	
HCD	Higher-Corsica Development
Institut de Créativité d'Entreprise	Institute of Enterprise Creativity
IUT	Technological University Institute
MITIC — CTC	ICT mission of the territorial collectivity of Corse
OSEO innovation Corse	Agency for innovation — Corsica delegation
Université de Corse	University of Corsica

Table 21 Corsican financial support instruments

<i>Organisation</i>	<i>Status</i>	<i>Mode of operation</i>
<i>FEMU QUI SA,</i>	<i>Venture capital Ltd</i>	<i>Equity stakes from 10% to 30% of the firms equity</i> <i>Average duration is 3 to 5 years</i>
<i>ADIE Š CORSICAN DELEGATION</i>	<i>Association for the right to economic initiative</i>	<i>Supports unemployed people unable to access loans to help them create their own company</i> <i>Solidarity Loan 5 000 euros over 2 years max, interest rates kept low</i>
<i>CORSICA INITIATIVE RESEAU</i>	<i>Local Regional Initiative Platform</i>	<i>Supports firm creation or take-over of very small firms</i> <i>Loans without interest from 3000 to 30 000 euros</i> <i>Under the condition that regular bank loan already obtained</i> <i>Business angel programme bringing experience and network to firm founder</i>
<i>Regional guarantee funds (complement SOFARIS)</i>	<i>Regional guarantee funds</i>	<i>Facilitates Corsican SMEs' access to bank funding</i> <i>Complements SOFARIS</i>
<i>BDPME (SOFARIS)</i>	<i>SME Development Bank</i>	<i>Allows the increase of BDPME guarantee up to 70% of bank loan and up to 457 347 euros</i> <i>BDPME and Corsican territorial Collectivity are partners in the creation of the guarantee funds (4.6 M euros)</i> <i>Plus: loans (3 000 to 8 000 euros) without interest for firm founders</i>

Table 22 Intervention of the region in selected sectors since 1992 (EUR million)²⁸

	1992	1993	1995	2001	2005
Road network	2.6	17.8	30.5	34	54.8
Education and training	24.4	31.9	34.1	45.7	48.8
Culture and heritage	4.7	6.4	10.8	13.7	19.1
Environment	1.7	5.6	11.4	13.0	15.1
Agriculture development	4.3	5.8	6.7	9.9	19.4
Tourism	3.5	3.7	6.7	8.7	13.5

Source: CTC website

Table 23 Structural funds allocated to Corsica from 1986 to 2006 (EUR million)

Dates	1986-1992	1990-1993	1994-1999	2000-2006
Funds allocated	112	110	285	210.9

Source: www.docup-corse.org

²⁸ <http://www.corse.fr/moyens/finances/evolution.php?id=7&id2=52&id3=61>

Annex 4: RTD policies

Title of the measure or initiative: Development of technological transfer structures in the 1990s.
Objectives: The main objective was to structure the research clusters and at the same time to reduce their number.
Policy Area (<i>Taxonomy used in Exhibit 1</i>): Knowledge and technology transfer to enterprises
Main instruments and structure:
Main beneficiaries /target group: Companies
Achievements or failures (<i>why it is an example of good practice or a failure</i>): The mid-term evaluation of “research and technological transfers” of the State-Corsica Contract Plan for 2000-2004 highlighted the following elements: “The appraisal of technological transfers shows the dominant position of agriculture and agro-food and testifies of the good functioning of valorisation schemes of natural and agro-food products. Synergies between research activities and technological transfers undeniably enabled reaching positive outcomes.”