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Regional Innovation Monitor

Regional Innovation Report (Catalonia)

To the European Commission
Enterprise and Industry Directorate-General
Directorate D – Industrial Innovation and Mobility Industries

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The Regional Innovation Monitor (RIM) is an initiative of the European Commission’s Directorate General for Enterprise and Industry, which has the objective to describe and analyse innovation policy trends across EU regions. RIM analysis is based on methodologies developed in the context of the INNO-Policy Trendchart, which covers innovation policies at national level as part of the PRO INNO Europe initiative.

The overarching objective of this project is to enhance the competitiveness of European regions through increasing the effectiveness of their innovation policies and strategies. The specific objective of the RIM is to enhance the scope and quality of policy assessment by providing policy-makers, other innovation stakeholders with the analytical framework and tools for evaluating the strengths and weaknesses of regional policies and regional innovation systems.

RIM covers EU-20 Member States: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom.

This means that RIM will not concentrate on Member States where the Nomenclature of territorial units for statistics NUTS 1 and 2 levels are identical with the entire country (Estonia, Latvia, and Lithuania), Malta which only has NUTS 3 regions, Slovenia which has a national innovation policy or Cyprus and Luxembourg which are countries without NUTS regions.

The main aim of 50 regional reports is to provide a description and analysis of contemporary developments of regional innovation policy, taking into account the specific context of the region as well as general trends. All regional innovation reports are produced in a standardised way using a common methodological and conceptual framework, in order to allow for horizontal analysis, with a view to preparing the Annual EU Regional Innovation Monitor reports.

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1 http://www.rim-europa.eu
Table of Contents

1. Main Trends and Challenges in the Regional Innovation System 1
   1.1 Recent trends in regional economic performance 1
   1.2 Recent trends in regional innovation performance 2
   1.3 Identified challenges 3

2. Innovation Policy Governance 7
   2.1 Degree of institutional autonomy 7
   2.2 Institutional-set up, co-ordination and implementation mechanisms 8
   2.3 Availability and use of policy intelligence tools 12
   2.4 Key challenges and opportunities 13

3. Innovation Policy Instruments and Orientations 15
   3.1 The regional innovation policy mix 15
   3.2 Appraisal of regional innovation policies 21
   3.3 Good practice case 22
   3.4 Portfolio of innovation support measures 23
   3.5 Towards smart specialisation policies 24
   3.6 Possible future orientations and opportunities 27

Appendix A Bibliography 29
Appendix B Stakeholders consulted 30
Appendix C RIM Repository information 31
Appendix D Statistical data 32

Appendices
Appendix A Bibliography ................................................................. 29
Appendix B Stakeholders consulted .................................................. 30
Appendix C RIM Repository information ......................................... 31
Appendix D Statistical data ............................................................... 32

Figures
Figure 2-1 Economic and innovation performance indicators ............ 2
Figure 3-1 Management and implementation structure of regional innovation strategy ................................................................. 12
Tables
Table 4-1 Overview of the regional innovation policy mix .................16
Table 4-2 Existing regional innovation support measures..................18
Executive Summary

1. Introduction: Main recent trends in the Regional Innovation System
The Spanish crisis of 1980 deriving from the previous international oil crisis, the entry of Spain in the European Union (EU), and the 1992 Olympic Games, among other factors, facilitated a progressive transition of the Catalan economy to a new economic development model. Catalonia has experienced a normal process in economies moving from a manufacturing-based model to a knowledge base economy.

The current economic crisis has given rise to a recession and an increase in unemployment in Catalonia, particularly with its large population of lesser-skilled workers. Between first quarter 2008 and first quarter 2009, Catalonia’s unemployment jumped by 8.6 percentage points to 16.3%, above the national increase of 7.8 percentage points and greater than the unemployment increase in other advanced Spanish regions.

Nevertheless, over the period 1996-2009, Catalonia increased R&D intensity from 0.9% to 1.68% of GDP, two-thirds of which is performed by the private sector. In absolute terms, expenditure by all actors on R&D (public administration, firms and higher education) increased four-fold over that period to €3.3b, or an average annual growth rate of over 13%. The only exception to this trend was in the business sector in 2009, when R&D expenditure recorded a decline (-4.5%), although before that period business R&D expenditure recorded an average annual growth of 10%.

2. Major innovation challenges and policy responses
Despite the crisis, Catalonia has the advantages of being an attractive location for working, having a well-developed research infrastructure, an open and international economy, and a broad-based innovation approach to address emerging market opportunities.

In order to improve competitiveness among Catalan firms, and reduce the competition from emerging economies, the following specific challenges have been identified:

Challenge 1: Increase R&D expenditure in the private sector.
The first challenge is to become a leading knowledge-based economy; the share of private sector R&D expenditure in the total regional R&D expenditure should be higher, in line with the share in the leading countries. This would promote new investment, reinvestment and expansion of companies while fostering development of new business activities, making Catalonia a pole of attraction for high added-value investment.
The specific objective here is to increase business expenditures in R&D and innovation to 1.6% of GDP in 2013.

**Challenge 2: Increase technology transfer and valorisation of the technology**
The Catalan system should improve mechanisms for bringing technology to market, through ‘market-pull’ R&D projects prompted by industry and developed by the research and science system, and through ‘technology push’ valorisation of research results, by creating technology-based companies, usually university spin-offs.

The ultimate objective would be to increase the number of Catalan companies present in international markets to 2/3 of total Catalan firms and promote the value of their products.

**Challenge 3: Increase the number and size of innovative firms**
This third challenge is to reinforce efforts to stimulate the growth of companies beyond the ‘threshold’ of innovative company turnover size (€5m) identified in the Catalan business system. For many years, complacency has been noted among the majority of Catalonia firms that, having grown to this size, did not take further initiatives to grow beyond that threshold. The Catalan system should include help for setting up new ventures, enabling strategic investment agreements among businesses, in order to get a 20% increase in the number of innovative companies by 2013 and help companies to grow above the identified turnover threshold.

**3. Innovation policy governance**
After the first autonomous elections of 1980, Catalonia’s government recognized the importance of investing in R&D and innovation for the economic growth, industrial diversification and social welfare of the region.

The financial autonomy of the Government of Catalonia for R&D has been severely constrained by the Spanish Government. Nevertheless, all the Research Plans of Catalonia have been funded by additional finance from the Central Government of Spain and, to a lesser extent, from European Regional Development Fund (ERDF) funds from the European Commission.

The Agency for Competitiveness of Industrial Innovation of Catalonia (ACCIÓ) within the regional Ministry of Enterprise and Labour is the body in charge of designing innovation policies and regional innovation strategies. However, in terms of science the Agency for the Management of University and Research Grants (AGAUR) and the Catalan Foundation for Research and Innovation (FCRI), both from the regional Ministry of Economy and Knowledge of the Government of Catalonia, are the bodies in charge of designing regional science strategies.
Between 1993 and 2004, three Research Plans were approved in Catalonia, each lasting for four years. As a second stage, a plan was conceived to bring together a joint action to promote Research and Innovation, the result of which was the Catalan Research and Innovation Plan (PRI 2005-2008). In 2010, the second Catalan Research and Innovation Plan (PRI 2010-2013) was launched.

One of the main challenges faced by regional innovation policy makers in innovation governance aspects is to increase the number of Catalan companies present in international markets and promote the value of their products. Other challenges are to achieve new investments, reinvestment and expansion of companies in Catalonia, while fostering development of new business activities, making Catalonia a pole of attraction for high added-value investment.

In this context, the recent publication of the new Catalan Research and Innovation Plan (PRI 2010-2013), to which all main actors identified in the Catalan innovation system have subscribed, is a good opportunity to achieve these objectives.

4. Conclusions: future actions and opportunities for innovation policy
Catalonia has been a region with a strong and active innovation system for almost two decades. Taking into account the policies of the European Union and the budgetary constraints coming from the Government of Spain, this new situation requires greater efficiency in the use of resources and greater emphasis on performance.

Nevertheless, in order for Catalonia to become one of the more dynamic and innovative regions, not only in Europe but also in the world, several strategic priorities have been established by the regional government and reflected at the regional Research and Innovation Plan 2010-2013:

- Promotion of entrepreneurship, especially by providing financial support in enterprise growth.
- Increased private investment through public funds.
- Provision of direct public assistance for companies that develop R&D and innovation projects.
- Promotion of participation of Catalan companies in national and European programs to support R&D and innovation projects.
- Catalan, Spanish and European funding for projects that promote business R&D outsourcing from agents that generate research technology (market pull and technology push).
- Improvements in the identification of new technologies and technology transfer.
- Encouragement for high technology clusters to compete in an international environment.
1. Main Trends and Challenges in the Regional Innovation System

1.1 Recent trends in regional economic performance

Catalonia’s economy is based on a long-standing industrial tradition. The Spanish crisis of 1980 deriving from the previous international oil crisis, the entry of Spain in the European Union (EU), and the 1992 Olympic Games, among other factors, facilitated a progressive transition of the Catalan economy to a new economic development model. Its agricultural sector is rather insignificant, although it has very strong food-processing subsectors that compete throughout the world, such as cava, wine, meat products and dried fruits. The Catalan economy also boasts a significant level of industrial activity in sectors such as automobiles and accessories, chemicals, food, electrical household appliances, and state-of-the-art computer and office IT equipment. The publishing industry and construction are also of crucial importance. Tourism and its associated business areas are a particularly notable element of the tertiary sector.

With over 7.3m inhabitants and a Gross Domestic Product (GDP) of around €207b in 2009, Catalonia is an important region within Spain and the EU. In terms of GDP, Catalonia grew at almost the same average annual growth rate (3.2%) as Spain overall (3.3%) from 1995-2005, and higher than European regions as a whole (2.9%). Nevertheless, like other regions in Spain and Europe, Catalonia has suffered a slowdown in GDP growth since 2007, with a sharp drop in 2009 (-3.5% in Catalonia and -3.1% in Spain). But according to preliminary figures provided by the National Statistics Institute (INE), GDP in Catalonia recovered in 2010, with very modest but positive growth (1.2% in Catalonia and 0.8% in Spain).

In the same way, Catalonia has experienced significant increases in unemployment, particularly with its large population of lesser-skilled workers. Between the first quarter of 2008 and the first quarter of 2009, Catalonia’s unemployment jumped by 8.6 percentage points to 16.3%, above the national increase of 7.8 percentage points and greater than the unemployment increase of other advanced Spanish regions.

Catalonia, with a GDP per capita in 2008 of €30,300, is behind the Basque Country (the region with the highest GDP per capita), Navarra and Madrid, but above the average rate of the EU27 (€25,100).

Regarding the structure of the Catalan economy, the tertiary sector has been predominant in recent years, with the share of the industry sector declining from 26% in 2000 to 21% in 2005, and to 17% in 2010. The service sector has increased its share from 65% in 2005 to 70% in 2010.
Catalonia has been typical of those economies transitioning from a manufacturing-based model to a knowledge-based technological economy. In the early stage of this process, some tertiary sector services were developed as a result of outsourcing the service functions that were previously handled internally by the industrial sector. In this way Catalonia has, in recent years, been creating a new service economy, with activities that were previously counted as part of the industrial sector now being part of services.

1.2 Recent trends in regional innovation performance

Catalonia, according to the figures in Figure 1-1, shows a better performance than the average in Europe in those aspects of innovation performance related to public funding: i.e. tertiary education (116%), government R&D expenditure (112%) and product/process innovators.

Over the period 1996-2009, Catalonia increased its R&D intensity from 0.9% to 1.68% of GDP. In absolute terms, the expenditure by all actors on R&D (public administration, firms and higher education) increased four-fold over that period to €3.3b, or an average annual growth rate of over 13%. The only exception to this trend was in the business sector in 2009, when business R&D expenditure recorded a decline (-4.5%); however, before that period, business R&D expenditure recorded annual growth of 10% on average.

During this period approximately two-thirds of R&D expenditure were made by the private sector and one-third by the public sector. This is in line with the recommendations of the European Union, which states that to become a leading knowledge-based economy, the distribution of effort in R&D should be two-thirds by the private sector and the rest by the public administration sector.
On the other hand, the figures in 2009, although negative for business, show stagnation in overall R&D expenditure (-0.06%), and a contraction of GDP in Catalonia (-3.7%), according to preliminary figures provided by the National Statistics Institute (INE), with the intensity of R&D in GDP at 1.68%.

A weak point in Catalan innovation performance has been the limited number of patents applied for with the European Patent Office (EPO). This indicator usually shows values in Catalonia well below the EU 27 average, although the value is consistently higher than for Spain as a whole. Nevertheless, from 1996 to 2006 the region’s share of publications in Spain grew from 21.2% to 25.5%, in the EU27 from 1.5% to 2.5%, and in the world from 0.5% to 0.9%. In absolute terms, that is a 70% increase over the period.

As a consequence of the Catalan innovation system, the type of innovation and propensity to innovate among Catalan firms depends on several factors, as explained later. Despite the diverse sectors and firms considered innovative, the bulk of R&D in Catalonia is conducted by a small group of firms in only a few sectors; 50 firms conduct 50% of the overall expenditure on innovation in Catalonia. The majority of researchers are found in two sectors:

- Pharmaceutical (high-tech manufacturing).
- Research and development (knowledge intensive services – KIS).

Firms that innovate show several times the levels of innovation and R&D expenditure compared with firms that did not report innovation. The probability of a Catalan enterprise increasing its innovation activity has usually depended on:

- Firm size.
- Access to public funds.
- Enterprises with a higher intensity of R&D expenditure per employee.

Despite the trends and numbers shown in Figure 1-1, Catalonia is one of the regions of Europe with an innovative activity considered as medium-high, at the same level of some of the leading regions in Sweden, Germany and France, reported in the Regional Innovation Scoreboard 2009.

1.3 Identified challenges

The most relevant challenges faced by industry in Catalonia are increasing competition from emerging economies, a lack of productivity growth in the region, and high rates of unemployment which have increased in recent times as a result of the economic crisis. Despite the crisis, Catalonia has the advantages of an attractive location, a research infrastructure, an open and international economy, and a broad-based innovation approach to address emerging market opportunities.
In order to improve competitiveness among Catalan firms, and reduce the competition from emerging economies, the following specific challenges have been identified:

**Challenge 1: Increase R&D expenditure in the private sector**

In Catalonia the business sector represents 60% of total R&D expenditure, a contribution broadly in line with the recommendations of the European Union (two-thirds from the private sector and one-third from the public sector). However, in order to become a leading knowledge-based economy, comparable to the leading and most innovative regions in Europe, such as some Swedish territories, the private sector share should be much larger, around 80% of the total R&D expenditure.

Moreover, as shown by leading innovative regions, this development would improve productivity growth by increasing private R&D activities, thereby making public and private R&D personnel more productive and efficient.

The specific objective in this sense is to increase business expenditures in R&D and innovation to 1.6% of GDP by 2013.

**Challenge 2: Increase technology transfer and valorisation of the technology**

In the Catalan system, where a great deal of research is carried out in excellent universities and research centres recognised as being of world class, more effort is required to encourage and intensify the technology transfer and valorisation of the technology to enterprises. Technology needs to be increasingly brought to market through:

- Market pull: R&D projects ordered from industry to the research and science system.
- Technology push: valorisation of research results through the creation of technology-based companies, usually university spin-offs.

The ultimate objective, as reflected in the Regional Innovation Agency ACC10 Plan for 2010-2013, would be to increase the number of Catalan companies present in international markets to 2/3 of total Catalan firms and promote the value of their products.

**Challenge 3: Increase the number and size of innovative firms**

This third challenge follows from the need for technology transfer and valorisation of the technology into enterprises.

Despite Catalonia holding an entrepreneurial tradition, with a large number and a high business creation rates, Catalan companies are still typically quite small, and the ambition for growth based on new technology initiatives is rather weak (more than 70% of entrepreneurs have no expectation of expansion).
In order to change this scenario, more focused efforts must be made to stimulate the growth of companies beyond the ‘threshold’ of company turnover size (around €5m) identified in the Catalan system. According to regional statistics, for many years, complacency has been noted among the majority of Catalonia firms that, having grown to this size, did not take further initiatives to grow beyond that threshold. Some of the new technology-based firms were created by researchers from the public sector, which explains part of the lack of ambition for growth.

In this respect, the specific objective set by the Regional Innovation Agency ACC10 would be to get a 20% increase in the number of innovative companies by 2013, and help companies to grow beyond the identified turnover threshold.
2. Innovation Policy Governance

2.1 Degree of institutional autonomy

Since the first autonomous elections of 1980, Catalonia’s government has recognised the importance of investing in R&D and innovation for the economic growth, industrial diversification and social welfare of the region.

The Statute of Autonomy of Catalonia provides Catalonia’s basic institutional regulations. It defines the rights and obligations of the citizens of Catalonia, the political institutions of Catalonia, their competences and relations with the rest of Spain, and the financing of the Government of Catalonia. The Catalan Constitution also specifies that the Government of Catalonia is jointly responsible for the coordination of research centers and structures in Catalonia.

As a consequence, the Government of Catalonia possesses a degree of budgetary policy autonomy, but this is constrained by the need for coordination with the Spanish Government. However, the Constitution allows Catalonia to control aspects of its affairs through its own Innovation and Research Agencies (ACC10 - The Agency for Competitiveness of Industrial Innovation of Catalonia, AGAUR - The Agency for Management of University and Research Grants) and regional ministries (Ministry of Enterprise and Labour, Ministry of Economy and Knowledge).

Nevertheless, Catalonia had developed its own regional science policies prior to Spain’s integration in the EU in 1986. Following initial efforts for a balanced approach in the early 1980s, the region took a more narrow academic focus, with a dual-track system for science & technology and innovation.

Prior to the first Research Plan launched in 1993, the Government of Catalonia requested full decentralization of R&D resources. However, the only areas of R&D administration fully transferred to the region are those affecting research in food and agriculture, fish farming and oceanography. This authority formed the basis of the Institute for Food and Agricultural Research and Technology (IRTA).

Therefore, the financial autonomy of the Government of Catalonia on R&D has been severely limited, although the region did obtain an increase in budget appropriations for R&D. In absolute terms, however, the R&D budget remains quite small for an economy the size of Catalonia.

The first Research Plan of Catalonia and all subsequent regional innovation plans have been supported by additional funds from the
Central Government of Spain and, to a lesser extent, from the European Regional Development Fund (ERDF) of the European Commission.

2.2 Institutional-set up, co-ordination and implementation mechanisms

Innovation policy in Catalonia is supported by the Industrial and Research Directorates, and is implemented by the Agency for Competitiveness of Industrial Innovation of Catalonia (ACC1Ó) within the Ministry of Enterprise and Labour (the main agency in terms of industrial innovation policies). This Agency is advised by the Agency for Management of University and Research Grants (AGAUR) and the Catalan Foundation for Research and Innovation (FCRI), both of which are within the Ministry of Economy and Knowledge of the Government of Catalonia. There are also other agencies and organizations affiliated with the Ministry of Health of the Government of Catalonia with specific activities related to R&D and innovation, such as BIOCAT (organization of the Government to promote biotechnology and biomedicine in Catalonia).

Despite the provisions of the Spanish constitution, governance of research has never been transferred to the Government of Catalonia, because of the ruling of the Constitutional Court of 11 June 1986, which restricts the scope of activities of the Government of Catalonia.

Nevertheless, Catalonia took an interest in its own science and innovation policies well before Spain’s integration in the European Union, and the Government of Catalonia created at that time the Centre for Innovation and Business Development (CIDEM). In 1986, the Government of Catalonia established the policy of the Promotion and General Coordination of Scientific and Technical Research, and assigned to the Inter-ministerial Commission for Science and Technology (CICYT) the task of programming research activities by means of the preparation of a National Plan for Scientific Research, Technological Development and Innovation, which has been renewed and implemented several times.

Between 1993 and 2004, three Research Plans were approved in Catalonia, each lasting four years. Each of these specified the strategic policy of the Government in R&D for a given period, setting the fields of action, the priority programs, and encouraging the creation of consolidated research groups, thematic networks and focal points for R&D.

The region’s Agency for Management of University and Research Grants (AGAUR), was created around this time (2001), along with the Centres for Technological Innovation Support (XIT). In terms of resources, innovation instruments remained rather poorly endowed in comparison with those focusing on the strengthening of the research infrastructure.

The Third Research Plan for Catalonia (2001-2004) consolidated the previous plan, most of its programmes being retained. The most
significant new measure was the development of the Catalan Institute for Research and Advanced Studies (ICREA), whose objective is to increase the critical mass of research personnel associated with Catalan research centres.

As a second stage, the Catalan Research and Innovation Plan (PRI 2005-2008) was devised, as a joint action to promote Research and Innovation. The inter-ministerial Commission for Research and Technological Innovation (CIRIT) coordinated its preparation, and mainly the Ministry of Universities, Research and the Information Society and the Ministry of Labour and Industry drafted it.

PRI 2005-2008 defined a framework of actions to promote supply and demand of technology, and in particular to foster the Network of Technological Centres.

During this period, the weaknesses in Catalonia’s demand-side driven approach began to be recognised. The decision was taken (by CIDEM - Centre for Innovation and Business Development, now the ACCIÓ agency) to develop an Industrial Innovation Plan distinct from the Research Plan (managed by CIRIT). This strategy reflected a more balanced approach between support for supply (academic/science) and demand (firm/industry) stakeholders. However, the integrated approach that underlies the conception of the Plan at the analytical level was not robustly implemented politically or financially.

There was little co-ordination in the form of joint management and financing procedures between responsible departments from different ministries or agencies. The increased resources devoted to support firm investment in R&D and innovative activities took the form of competitive grants, and, to a lesser extent, subsidised loans and guarantees.

As a consequence, a long-term roadmap was agreed and launched in 2008. The Catalan Agreement on Research and Innovation (PNRI) was signed with a broad political and social consensus, and established research and innovation as strategic priorities of Catalonia.

Among the new instruments described in the PNRI was the Agency for Competitiveness of Industrial Innovation of Catalonia (ACCIÓ), which was launched along with its own Plan, in order to promote innovation and internationalisation among Catalan firms. ACCIÓ resulted from the merger of CIDEM (the agency to promote industrial innovation) and COPCA (the agency to promote internationalization), and became the main agency in Catalonia for the execution and support of industrial innovation.

In 2010 the second Catalan Research and Innovation Plan (PRI 2010-2013) was launched. It is the fundamental instrument for maintaining
the development of the Catalan Agreement on Research and Innovation (PNRI) during the next four years. This Plan covers a period up to 2013, and is synchronised with European planning (EU 7th Framework Programme for Research and Technological Development (2007-2013)).

PRI 2010-2013 identifies 17 priority research areas for Catalonia, including energy, water, healthy food, health and tourism. The total investment allocated for four years is €5,308m, of which nearly 85% (€4,497m) is allocated to R&D (science scope), and the rest (€811m) to innovation (industrial scope).

In this context, there is ongoing and free communication between the Agency for Competitiveness of Industrial Innovation (ACC1Ó) of the Government of Catalonia and other regional, state and European organisations. The importance of this is reflected in the Catalan Agreement on Research and Innovation (PNRI), which stresses the need to coordinate the different public policies and innovation support measures driven by different levels of administration (Catalan, Spanish and European). The alignment of programmes and priority actions is required to achieve the maximum possible funding resources for Catalan firms in an efficient manner.

Stability and continuity of the key staff is important in main agencies such as the ACC1Ó; this has allowed the consolidation of a networking and coordination culture with other organisms at regional, national and inter-regional/European levels.

Concerning coordination mechanisms at national level, the ACC1Ó and the Ministry of Enterprise and Labour of the Government of Catalonia collaborate with the Spanish Ministry of Industry, Tourism and Trade and the Ministry of Science and Innovation, to coordinate actions and facilitate access by firms to regional, national and international programmes and services.

The ACC1Ó has a close coordination with organisations at different levels:

- At a national level, the Centre for the Development of Industrial Technology (CDTI) is the Spanish innovation agency that supports R&D and innovation business projects and international exploitation of technologies developed by companies. It evaluates and finances technological developments, innovations and modernisation projects developed by Spanish companies; CDTI also manages the Spanish participation in international programmes of R&D and technological cooperation (Community Framework Programme, Eureka programme, Iberoeka-with Latin-American countries-programme, etc.) and promotes technology transfer and technological cooperation between firms.
• At a European level, there are several offices belonging to the ACCIÓ; one of them is in Brussels and it is in charge of monitoring the EU R&D and innovation policies, channelling relevant information to targeted Catalonia innovation stakeholders, and representing the regional innovation department within EU institutions.

Moreover, ACCIÓ not only participates in Eranets R&D (for instance MANUNET, EUROTRANSBIO, OLAE +), but is also a direct beneficiary of other European funded projects (mainly through Interreg and DG Enterprise initiatives) which allow a smooth contact and close cooperation with other European regions and administrations for sharing good practice and implementing, in a collaborative way, innovation polices.

• At regional level, other organisations in the innovation field include the Catalan Agency for Health Information, Assessment and Quality (AATRM), the organization that promotes the biotechnology, biomedicine and medical technology sector in Catalonia (BIOCAT), and the Institute for Food and Agricultural Research and Technology (IRTA). The Government of Catalonia regularly establishes coordinated innovation support policies with these agencies of the regional government.

In addition, the R&D and innovation system in Catalonia includes universities, technological centres (TECNIO network), research centres (currently 39 research centres within the Research Centres Program -CERCA- linked to departments of the Government of Catalonia), and other centres such as the Consejo Superior de Investigaciones Científicas (CSIC), hospitals, etc.

ACCIÓ is responsible for managing the TECNIO Network of Technology Centres. TECNIO is the umbrella organisation set up by ACCIÓ with the aim of bringing together leading experts currently working in applied research and technology transfer in Catalonia.

TECNIO organises its know-how into seven technological fields: biotechnology and health sciences, food technology, information and communication technologies, materials technologies, energy and environmental technologies, chemical technologies and production technologies.

In the last four years, the number of businesses supported by TECNIO, and their combined turnover, has doubled. In 2009, TECNIO had 20 technology centres, more than €146m total income, 10 spinoffs created, more than 80 patents applied for, and more than 65 technology-based companies created since 2000. TECNIO also actively participates in the VII Framework Programme.
2.3 Availability and use of policy intelligence tools

In order to guarantee a successful outcome for the Catalan Research and Innovation Plan (PRI 2010-2013), the Government of Catalonia has established some evaluation tools to inform its development and assessment into the Catalan innovation system. In this context, each innovation support measure defined in this programming period includes a set of annual indicators for monitoring outcomes from its implementation. However, the only body systematically analysing and evaluating the strategies and policies of R&D and innovation is the ACC1Ó.

Almost every year the ACC1Ó carries out a study of the general situation of the R&D and innovation system of Catalonia. The results are fully published, and include recommendations and challenges concerning the Catalan innovation system. By this means possible changes and improvements in policies implemented by the ACC1Ó and the Government of Catalonia are identified.

There are also internal (i.e. not published) assessments performed by both the Industrial and the Research Directorates, and the ACC1Ó within the Ministry of Enterprise and Labour, regarding the implementation of R&D and innovation policies. These assessments are primarily quantitative, with the objective of analysing and improving the measures undertaken. Thus, for example, all ACC1Ó staff involved...
in monitoring and evaluation of projects carries out an annual review of the results, with recommendations regarding changes and improvements. Indicators used are the number of proposals presented in each call, and the characteristics and quality of the projects (funds raised, number of participants per project, business sector and technology breakthrough, problems solved, etc.).

Furthermore, the ACCIÓ has established an alliance with independent evaluators, the IESE Business School, in order to establish new indicators and impact assessments of the Catalan innovation system by comparison with other innovation systems. Once the indicators and impact assessments are developed, results will be systematically published to indicate clearly the innovative performance of Catalan firms.

2.4 Key challenges and opportunities

In 2009, the Government of Catalonia launched the 2010-2013 Plan, which is ACCIÓ’s road map for its commitment to business. It also aims to contribute to the development of a new organisational model, laying down initiatives to drive Catalonia towards a more competitive, developed and leading-edge economy. The plan has been forged with the active and valuable participation of firms, business federations and regional technology research centres.

The key challenges and opportunities faced by regional innovation policy makers are the following:

- Increase the number of Catalan companies present in international markets to 2/3 of total Catalan firms and promote the value of their products.
- Promote new investments, reinvestment and expansion of companies in Catalonia while fostering development of new business activities, making Catalonia a pole of attraction for high added-value investment, and increase business R&D expenditures to 1.6% of GDP by 2013.
- Increase enterprise productivity and competitiveness with special emphasis on innovation, technology and talent.
- Help for setting up new ventures, and enabling strategic investment agreements among businesses, in order to get a 20% increase in the number of innovative companies by 2013.

Moreover, the ACCIÓ Plan is founded on four opportunity strategic areas and driven by 12 key activities. The four major opportunity strategic areas highlight the outstanding aspects of development required in order for Catalan business to gain an important competitive edge. These four opportunity strategic areas and 12 key activities are:

- Core 1: Training
  - Management strategy and systems
  - Competitive use of ICTs
  - Encouragement of talent in the company
- Core 2: Differentiation
• Core 3: Growth
  o Major national projects and alliances
  o Corporate business initiatives
  o Financing
• Core 4: Global link-up
  o Support for global businesses
  o Presence in business and knowledge networks
  o Attraction of high-impact investment
3. Innovation Policy Instruments and Orientations

3.1 The regional innovation policy mix

The innovation policy mix is the set of measures included in the different Plans introduced since 1993. In 1986, the Government of Catalonia established a regulatory framework to promote and coordinate scientific and technical research, and boosted the preparation of a National Plan for Scientific Research, Technological Development and Innovation, which has been implemented several times.

In Catalonia, R&D and innovation support policies have been periodically specified by Research Plans (1993-1996, 1997-2000, and 2001-2004) and an Innovation Plan (2001-2004). This evolution of research and innovation policies has been developed throughout the last few decades in different ways:

- During the 1980s, the main priority was to increase basic scientific knowledge. Given low levels of national productivity, the main focus was on big companies and public research centres at the national level, such as the “Consejo Superior de Investigaciones Científicas-CSIC” (i.e. the Institutes of the Spanish Research Council located in Catalonia). Innovation policy was developed through the R&D Spanish Plans, the creation of new R&D structures, R&D grants, and tax incentives.

- In the 1990s, R&D policy focused on the dissemination of tacit knowledge previously captured, focusing on technology transfer with a sectorial and European scope. The targets at this stage were SMEs and technological centres. Innovation policy included the creation of some new instruments, including Centres for Technology Transfer (CTT), incentives to SMEs promoted by regional and Spanish innovation agencies, the launching of the first research plan, the internationalisation of research, and the consolidation of research groups.

- In the 2000s, the last stage, innovation policy focused on optimisation of the innovation system. In order to correct systematic errors and reinforce company competitiveness, it focused on subcontracting R&D activities and innovation management with both a regional/local and national/European scope. The main foci were clusters, technology providers and technology start-up companies. The instruments launched in this period were the creation of technology networks, a technological market, new tax incentives, entrepreneurial programs and transition to the digital era.
<table>
<thead>
<tr>
<th>Governance &amp; horizontal research and innovation policies</th>
<th>Research and Technologies</th>
<th>Human Resources</th>
<th>Creation and growth of innovative enterprises</th>
<th>Markets and innovation culture</th>
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<tr>
<td>R&amp;D Collaborative Projects 1.3.1 Cluster framework policies</td>
<td>2.2.3. R&amp;D cooperation 2.2.2. Knowledge Transfer</td>
<td>3.3.2 Recruitment of skilled personnel in enterprises</td>
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<tr>
<td>Innovative Enterprise</td>
<td>-</td>
<td>2.3.1 Direct support for business R&amp;D 2.2.2. Knowledge Transfer</td>
<td>-</td>
<td>5.1.1 Support to the creation of favourable innovation climate</td>
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<tr>
<td>Innovative Cooperation 1.3.1 Cluster framework policies</td>
<td>2.2.3. R&amp;D cooperation 2.2.2. Knowledge Transfer</td>
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<td>5.1.1 Support to the creation of favourable innovation climate</td>
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<tr>
<td>Seventh Framework Programme R+D projects</td>
<td>-</td>
<td>2.3.2 Indirect support to business R&amp;D</td>
<td>-</td>
<td>4.2.1. Support to innovation management and advisory services</td>
</tr>
<tr>
<td>New Technology-Based Companies (NEBTs)</td>
<td>-</td>
<td>2.3.1 Direct support of business R&amp;D</td>
<td>3.1.1 Awareness creation and science education</td>
<td>4.3.1 Support to innovative start-ups incl. gazelles</td>
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<td>Measure to finance investment project into industry 1.3.2 Horizontal measures in support of financing</td>
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<td>3.1.1 Awareness creation and science education</td>
<td>4.1.1. Support to sectoral innovation in manufacturing</td>
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Source: Own assessment.

During the last decade, innovation policy driven by the ACC1Ó focused on optimisation of the innovation system. In the last four years it has focused more specifically on a range of support measures to bring up new R&D related to high technological risk and high critical mass projects, in order to get new R&D projects with strong support from the public sector to cover the market gap.

This new approach has led to the:

- Growth of technological centres
- Generation of a technology network for SMEs
- Attracting investment in technology
- Professionalization of transfer groups
- Generation of high-tech management skills
The main target groups are SMEs and companies with R&D-intensive activities. However, big corporations are also involved in order to foster investment on high technological projects in collaboration with SMEs.

The budget provided for the main support measure (R&D Collaborative Projects) is not enough to give support to all the best projects qualified on each call. This lack of finance has been ameliorated by support from other Spanish programs mainly managed by CDTI.
**Table 3-2 Existing regional innovation support measures**

<table>
<thead>
<tr>
<th>Title</th>
<th>Duratio</th>
<th>Policy priorities</th>
<th>Budget</th>
<th>Organisation responsible</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D Collaborative Projects</td>
<td>2007-2011</td>
<td>1.3.1 Cluster framework policies</td>
<td>€12,000,000</td>
<td>Agency for Competitiveness of Industrial Innovation of Catalonia (ACC1Ó)</td>
<td><a href="http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp">http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp</a></td>
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<td>2.2.3. R&amp;D cooperation</td>
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<td>5.1.1 Support to the creation of favourable innovation climate</td>
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<tr>
<td>Innovative Cooperation</td>
<td>2007 - 2013</td>
<td>1.3.1 Cluster framework policies</td>
<td>€1,000,000</td>
<td>Agency for Competitiveness of Industrial Innovation of Catalonia (ACC1Ó)</td>
<td><a href="http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp">http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp</a></td>
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<td>2.2.2. Knowledge Transfer</td>
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<td>5.1.1 Support to the creation of favourable innovation climate</td>
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<tr>
<td>Seventh Framework Programme R+D projects</td>
<td>2009 - 2011</td>
<td>2.3.2 Indirect support to business R&amp;D</td>
<td>€1,000,000</td>
<td>Agency for Competitiveness of Industrial Innovation of Catalonia (ACC1Ó)</td>
<td><a href="http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp">http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp</a></td>
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<td>4.2.1. Support to innovation management and advisory services</td>
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<tr>
<td>New Technology-Based</td>
<td>2009 - 2010</td>
<td>2.3.1 Direct support of business R&amp;D</td>
<td>€4,000,000</td>
<td>Agency for Competitiveness of Industrial Innovation of Catalonia (ACC1Ó)</td>
<td><a href="http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp">http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp</a></td>
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<tr>
<td>Companies (NEBTs)</td>
<td>and science education 4.3.1 Support to innovative start-ups incl. gazelles</td>
<td>Measure to finance investment project into industry 2009 - 2011 1.3.2 Horizontal measures in support of financing</td>
<td>€18,000,000 Agency for Competitiveness of Industrial Innovation of Catalonia (ACC+iÓ)</td>
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</table>

Source: Own assessment.
To sum up, the three regional innovation policy measures introduced below can be considered as the most relevant for the Catalan business sector:

1. **R&D Collaborative Projects.** This policy measure is well regarded in the business and technological sector of Catalonia. The results obtained by the companies that had participated in it were particularly positive. The main beneficiaries of this measure are enterprises in cooperation with at least one SME, although universities and technological centres must participate as subcontractors within the R&D business projects.

2. **Innovative Enterprise.** This measure allows SMEs to subcontract knowledge to external companies in fields related to phases of design, development and validation, prior to industrialisation of the product, as a way of increasing the company’s competitiveness.

3. **Support for participating in Seventh Framework Programme R&D projects.** As a consequence of this support, enterprises have been introduced to several European Commission programmes, which has enabled them not only to identify their potentialities and participate in different areas, but also to become familiar with technical companies from other countries, enabling them to acquire, for example, new working methodologies and technologies previously unknown to them.
3.2 Appraisal of regional innovation policies

Scientifically successful outcomes have followed the launch of the first Research Plan in the early 1990s, with its focus on basic science. However, in recent years, innovation policy has become predominant, focusing on optimization of the innovation system. In order to correct systematic errors and reinforce company competitiveness, it focused on subcontracting R&D activities and innovation management with an enhanced regional/local and national/European scope.

Partly due to Catalonian innovation policy, between 1996 and 2009, R&D increased more rapidly than GDP, raising the intensity of R&D from 0.9% of GDP (1996) to 1.68% (2009), with average annual increases in R&D of 11% during the second half of this period. Also, between 2006 and 2009 there was a large increase in public investment in R&D, which doubled between 2006 and 2009. At the same time, business expenditure accounts for more than 60% of R&D in Catalonia.

The evaluation of the effectiveness of regional innovation policies is carried out by means of surveys addressed to beneficiaries, who provide both quantitative and qualitative assessments of the implemented measures; however, it is rather difficult to establish a direct cause-effect relationship between an innovation policy measure and the evolution of the economic indicators of the beneficiaries.

There are some factors that could have had a bigger influence on innovation policy outcomes, some of which relate to the challenges previously identified in section 1.3, as follows:

• The first important factor is the need for some political and financial stability over a long period of time, at least 10 years, to ensure that companies have future security of instruments and budgets for innovation.

• Another relevant factor is the inadequacy of incentives coming from the private sector designed to stimulate greater industrial investment and hence multiply the efforts of the public sector in terms of innovation. To support all innovative projects, it is necessary to develop some innovation-specific financial instruments, through financial institutions, public, private or semi-private banks.

• Last but not least, there is the difficulty with certain companies growing beyond a ‘threshold’ level of turnover (€5m). This happens in particular with companies coming from the public sector, which are often spin-offs set up by researchers who also have other income as employees.

If difficulties in the macroeconomic environment persist in the medium to long term, the principal barrier that the regional innovation stakeholders may face is the difficulty of accessing public or private finance, which will hinder future R&D and innovation initiatives.
The current set of regional innovation policy measures is oriented in the right direction to address the challenges identified in the Catalan innovation system.

3.3 Good practice case

The best example of good practice has been the creation and development of business competitiveness based on dynamic clusters, placing Catalonia as a leading region in the world on cluster initiatives. Following activity over almost two decades, Catalonia now has a rich system of 30 clusters in fields as diverse as food, textiles, capital goods and renewable energy, with the active involvement of a thousand entrepreneurs.

This initiative started in 1992 with the publication of "Avantatges Competitius de Catalunya" (Competitive advantages of Catalonia), which for the first time configured the network of the Catalan economy around eight significant clusters. This study provided an assessment of all these competitive clusters and established some priority areas for strengthening the competitiveness of each of them. The Department of Industry and Energy of the Government of Catalonia sought to enhance the competitiveness of industrial clusters in the region by establishing a process of change inspired by the work of Michael E. Porter “The Competitive Advantage of Nations (1990)”.

This new cluster policy was introduced in parallel with the implementation of innovation initiatives to strengthen competition, in a close collaboration with CIDEM - Centre for Innovation and Business Development, now the ACC1Ó agency, and the Ministry of Enterprise and Labour of Catalonia. This agency became responsible for implementing measures to strengthen competitiveness and facilitate strategic change.

This cluster initiative is well regarded as a good example of an innovative approach to supporting innovation, as the Barcelona City Council recognise, creating the new district named “22@”, which promotes projects with this approach in the field of so-called urban clusters that operate in highly knowledge-intensive areas such as renewable energy, information technology and communication, audio-visual and design.

There are many innovative capabilities attributable to clusters: economic revitalization of the Catalan territory, increasing productivity and innovation capacity and the promotion of entrepreneurship, among others. The cluster policy is based mainly on promoting the planning of actions and common diagnosis, defining the strategic challenges of each cluster, and allowing deployment of joint policies thereby saving resources. The Catalan Government is thus encouraging this common strategy through the cluster policy.
Rather than awarding grants, this approach seeks to identify what is most effective, innovative and functional.

In 2010, ACC1Ó supported through the cluster policy 160 innovative projects that generated an investment of €20.8m, in the fields of innovative business models, winning strategies and innovative platforms with a strategic approach.

3.4 Portfolio of innovation support measures

Catalonia has never been completely autonomous in terms of tax collection and budget control. This means that the region has never been fully able to allocate significant financial resources to its own innovation policy programmes.

Nevertheless, with the R&D budgetary resources available, the Government of Catalonia has implemented some innovation support measures adapted to the actual needs of Catalonian innovation. The available budget in the region to carry out their policies has been traditionally based on funds from the European Union and the Government of Catalonia; additional national R&D funds were allocated on the basis of common national policies.

Therefore, the main sources of public resources for funding Catalan innovation policies are the Treasury Department of Spain in coordination with the Ministry of Economy and Knowledge of the Government of Catalonia. Over the period 2007-2010, an estimate of the origin distribution of the funds dedicated to finance the innovation programmes in Catalonia is:

- 10% from Catalonia funds (ACC10).
- 66% from State funds (CDTI – Spanish national innovation agency).
- 23% from European Commission funds (7th Framework Program).

Catalan companies have a very high participation in CDTI financed projects - the percentage of CDTI funding granted to Catalan companies is a little above the proportional contribution of Catalan industry to Spanish industry GDP. As previously mentioned, CDTI is the Spanish national innovation agency based within the Spanish Ministry of Science and Innovation, and it is the single organisation of the Spanish government which centralises all the national public funding for business RTD and innovation initiatives. Around 25% of overall business RTD projects funded by CDTI during the period 2005-2009 involved Catalan firms, while Catalan RTD expenditure represents some 22% of the Spanish overall RTD expenditure; thus Catalan firms are obtaining a higher proportion of national RTD funds than their overall contribution to Spanish R&D expenditure. This is a consequence of the innovation culture among Catalan firms and of the financing
collaboration culture which has been set up between CDTI and the Government of Catalonia.

Regarding European Union innovation policies, the Catalan regional receipts from the 7th Community Framework Programme during the period 2007-2011 (January) amounted to €336.6m, of which some 19% were granted to private companies. This represents 28% of the total Spanish receipts from the 7th Framework Programme for the same period, which is higher than the regional contribution to the national overall RTD expenditure (22.5%).

Taking into consideration the proportion of Catalonia’s population in EU27 (1.4%), and the overall 7th Framework Programme budget for the 2007-2013 period (€50,521m), the estimated regional return for the period should be over €700 million (1.4% of overall FP7 budget). Thus, a better performance, in terms of return, might be expected by the programming period’s end.

In an attempt to address the budgetary constraints of Catalonia, it is intended to develop new measures to enable Catalan firms and institutions to obtain funds from outside the region for their R&D activities. In this way, regional funds can be efficiently distributed and the overall funding intensity can be maintained, counterbalancing the reduction of funds coming from the Government of Spain, while seeking increase the competitiveness of the industrial fabric through appropriate R&D projects.

The objective is to encourage firms and research groups in submitting applications for different international aid calls, thus obtaining finance other than from regional and national funds for their R&D activities. The target is to increase the percentage of funds raised from other administrations to 30% of the Spanish receipts on different calls managed by the EU.

3.5 Towards smart specialisation policies

The smart specialisation policies of the regional government of Catalonia are focused on the stimulation and coordination of several clusters created in the last two decades.

As stated above, this started in 1992 with the publication of work "Avantages Competitius de Catalunya", which for the first time configured the network of the Catalan economy around eight significant clusters. This work gave an assessment of all these clusters and established some priority areas for strengthening competitiveness in each one of them. In 1993, Catalonia was one of the pioneer regions in the world in developing policies to strengthen business competitiveness based on dynamic clusters. As stated, there are now 30 clusters in Catalonia working in fields like food, textiles, capital goods and renewable energy, which have the active involvement of a thousand firms. In addition, the headquarters of The Competitiveness Institute
(TCI), the most prestigious organization in the international knowledge clusters, is located in Barcelona. Further, the IESE business school has been accredited by the European Commission to form the academic centre for cluster management.

The cluster policy is based on stimulating these smart specialization poles in order to promote the planning of actions and common approaches, and defines the strategic challenges of each cluster, allowing the deployment of joint policies and thus saving resources.

The first stage of the cluster policy in Catalonia (1993-2004) introduced the concept of strategy as a key element in strengthening competition. In that period, more than twenty specific actions were introduced to strengthen competitiveness, in geographically defined micro clusters. Support for more targeted strategies by companies was offered.

The second stage (2004-2009) began with the preparation of a map that identified 42 clusters, which comprised 39% of the turnover of Catalan industry. Also the Centre for Industrial Prospective was created as a unit dedicated to the cluster policy, which carries out its activities in close collaboration with the Centre for Innovation and Business Development (CIDEM, now the ACC1Ó agency). It also triggered a process of diversification initiatives, some of which were no longer so tied to geographically defined clusters. During this period, over twenty actions were introduced to strengthen competitiveness and promote business cooperation between enterprises within clusters, as a mean of promoting competitiveness.

In 2009, in response to increasing challenges facing clusters, such as the speed of technological change and the globalisation of markets, the Government of Catalonia reoriented the cluster strategy to align it with the recommendations of the European Commission. With this reorientation, the cluster policy in Catalonia is one of the first to introduce the recommendations of the European Commission for the development of world-class innovation clusters, which have more critical mass and are transverse (i.e. clusters involving firms from several industry sectors), internationally connected and highly professional.

Diverse regional sub-systems of innovation are the result of environmental conditions that encourage business innovations, and policies in Catalonia are designed to improve those environmental conditions that encourage business innovation. This approach is based on a systemic view, where the actions are promoted by several organizations sharing the same vision. Actions are aimed at strengthening networks (technology centres, technology parks, etc.), cluster development, and encouraging entrepreneurial spirit through funding schemes (concept capital, venture capital, etc.).
Within the regional innovation sub-systems of Catalonia, science and technology parks take a leading role as areas of priority location and concentration of agents of science and innovation domains.

Catalonia has a number of science and technology parks which make up a landscape characterised by diversity, expertise and potential, and aim to facilitate the creation of a competitive environment, business cooperation, and public private partnerships; science and technology parks help to identify, organize and coordinate stakeholders and innovation projects in the territory aligned with the strategy of ACC1Ó, and connect the poles of technological innovation with regional development strategies.

In recent years the regional government has boosted the creation of a few regional sub-systems of innovation that are currently being developed:

- Regional systems of innovation of La Selva. This is a platform for the food industry (food industry, tourism and gastronomy). The project identifies three complementary lines of action and common goals (development and positioning of the territory, Cluster Innovation System, Economic development and markets)
- Regional systems of innovation of Bages. The cluster of advanced materials plays a crucial role and represents a major player in Catalonia in terms of size and potential for innovation. It promotes individual and cooperative research, innovation and internationalization among companies in the cluster.
- Regional systems of innovation of Terrassa. The cluster of optics comprises a total of 38 companies in Catalonia (60% of Spanish optics firms), a turnover of €600m and employs 4,900 workers, and it is based on an international technology.
- Regional systems of innovation of Terres de l’Ebre. The cluster of aquaculture involves 50 companies with a turnover of approximately €400 m and 1,000 employees.

Moreover, ACC1Ó, in collaboration with the XPCAT (Network of Science and Technology Parks of Catalonia), develops an active policy to encourage and strengthen the science and technology parks as agents of strategic regional sub-systems of innovation, promote research and transfer technology, the creation of technologically innovative companies and the connection with enterprises and clusters in Catalonia, among others.

Catalonia has a total of 24 parks that are members of XPCAT and located in different areas of the region, particularly near Barcelona. Basically, the parks activity is focused on ICT and Media (Catalan’s parks comprise 54.17% of total Catalan activity in this sector among its priority areas to attract new business and firms), followed by environmental technologies (50%). Other areas are biotechnology life sciences (37.50%), technology of materials (29.17%) and agricultural (29.17%).
However, this development process to consolidate high technology clusters coming from research into clusters fostering international competitiveness requires a reduction of rivalry among the science and technology parks of Catalonia, and further alliances among them in order to reach international critical mass and activate efficient regional sub-systems of innovation in terms of public-private partnership. A new smart specialisation policy will take account of important changes in industrial development:

- One of the most important changes is the blurring of boundaries between industry and the tertiary sector to define a new industry, integrating manufacturing and services for production, which is central to the Catalan economy and the beneficiary of the new initiatives to strengthen the competitiveness policy based on smart specialisation or clusters.

- The first major change in the new model related to the above change revolves around the definition of projects. Until 2009, the vast majority of initiatives were restricted to micro clusters located in a small part of the territory of Catalonia, while thereafter, the selection criterion was based on end markets and involved expansion of the geographic reach throughout Catalonia.

- The second major change to the model is the cluster policy launched in 2009, involving market initiatives to support increased competitiveness at the Spanish and European level.

- The third change relates to project management, which needs to be conducted by experienced professionals in line with the recommendations of the European Commission.

- The final change comes from the need to boost cooperation between clusters of different countries.

3.6 Possible future orientations and opportunities

Following outcomes from innovation policies specified in the Research and Innovation Plans since 1993, Catalonia should keep pushing the innovation boundaries to become one of the more dynamic and innovation regions not only in Europe but also in the world. Following this strong commitment, several strategic action lines have been established.

Entrepreneurship should continue to be promoted, especially by providing financial support for the growth of enterprises. In fact, about half of the companies that receive public support to finance R&D and innovation in Catalonia, would not undertake the project without the support of the public administration.

Following this effort, there should be greater stimulation of private investment through public funds. Mainly, this reflects the trend to give increasing support to the promotion of collaborative projects between
companies, to allow the development of larger scale R&D projects despite the small size of Catalan companies (98% are SMEs). In relation to this effort, and due to the economic and budgetary constraints in Catalonia, the regional government must continue promoting the participation of Catalan companies in national and European programs to support R&D and innovation.

In addition, regarding technology transfer and the improvement of technology in Catalonia, the administration should encourage both Catalan/Spanish and European funding for projects that promote business R&D outsourcing from agents which generate research technology (market pull and technology push).

Moreover, in the early stages of technology commercialisation, the public sector should encourage the identification of new technologies and their technology transfer, while at the same time letting the market choose the best business and successful technology.

Nevertheless, in order to focus in winning strategies through smart specialisation with the new concept of high technology clusters to compete in an international environment, a reduction of the rivalry and an increase of alliances among science and technology parks of Catalonia should be considered, in order to gain critical mass and focus on efficient public-private partnerships in regional sub-systems of innovation.

On the other hand, some opportunities will arise in the coming years as demand grows for knowledge-intensive social goods, many driven by the public sector (e.g. health, environment and aging). It should also be an opportunity for Catalan firms to participate in global knowledge networks and technological platforms, and at the same time promote the diversification of production and trade towards goods and services with higher knowledge content.
Appendix A Bibliography

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Appendix B Stakeholders consulted

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2. Jordi Carbonell Pastor, Sub Director of Industrial Policy at Enterprise and Labour Department, Government of Catalonia (28-10-2011)
3. Carles Gómara Martínez, Innovation Manager at ACC1Ó, Enterprise and Labour Department, Government of Catalonia (14-10-2011)
Appendix C RIM Repository information
Baseline regional profile

- ESPAÑA
- ESTE
- Region CATALONIA
- NUTS Code ES51

Regional Profile

Introduction

Catalonia (in Catalan, Catalonia; in aranés, Catalanha) is an autonomous community Spanish considered as historical nationality, placed to the north-east of the Iberian Peninsula. There occupies a territory of approximately 32,000 km² that borders in the northern part on France (Mediodía-Pirineos and Languedoc-Roussillon) and Andorra, in the eastern part on the Mediterranean Sea along a maritime band of approximately 580 kilometres, in the southern part on the Valencian Community (Castellón), and in the western part on Aragon (Saragossa, Teruel and Huesca). This strategic situation has favored a very intense relation with the territories of the Mediterranean basin and with the continental Europe. Catalonia is formed by the provinces of Barcelona, Gerona, Lerida and Tarragona. The capital is Barcelona.

Repository

Support measures

- Measure to finance investment project into industry
- Seventh Framework Programme R+D projects
- New Technology-Based Business (NEBTs)
- R&D Collaborative Projects
- Innovative Enterprise
- Cooperative Innovative

Policy documents

- PRI 2010-2013 (Research and Innovation Plan for Catalonia)
- ACC1O Plan 2009-2013
- CARI (Catalan Agreement on Research and Innovation)

Organisations
Economy

Catalonia has more than seven million inhabitants, distributed among 946 municipalities. The territory is divided up in two ways. Firstly, there are the divisions established by the Catalan authorities, consisting of 41 regions (called "comarques" in Catalan). Secondly, there are administrative divisions established by Spanish government, consisting of 4 provinces: Barcelona, Girona, Lleida and Tarragona. The city of Barcelona is the capital of Catalonia.

Catalonia has a prosperous economy. Its primary sector is somewhat insignificant, although it has very strong subsectors that compete throughout the world, such as cava, wine, livestock, meat products and sweet fruits. Catalan economy also boasts a significant level of industrial activity in sectors such as automobiles and accessories, chemicals, food and the manufacture of electrical household appliances and state-of-the-art computer and office IT equipment. Publishing industry and construction are also of crucial importance. Tourism and its associated business areas are a particularly notable element of the tertiary sector.

With a gross domestic product of €210,000m (2008), the Catalan economy is the biggest of all the autonomous communities of Spain. With regard to GDP per capita, Catalonia places in the fourth position after the Community of Madrid, Navarre and Basque Country, with €26,124 (2006), superior to the Spanish average of €22,152, and to the average of the European Union of €24,500. De fact, the GDP per capita of Catalonia overcomes those of Finland and Sweden, France and Germany.

Primary sector, since in the developed countries, occupies only 3% of the labor force, but it is integrated by powerful subsectors that compete worldwide (as for example champagne, wine, pigs, sweet fruit and meat derivatives).

Industry led the economic development of Catalonia, and until middle of the 70s, was the sector that headed the economy, with 45% of the total of the gross domestic product Catalan (GDP), and occupying in addition 40% of the active population in 1979. Catalonia is the community with major participation in the industrial Spanish GDP, with 25%.

The tertiary sector has grown notably during the last three decades and at present it is a wide and diversified sector, and the principal one with regard to the percentage of the GDP and the occupation.

Research, Development & Innovation

The volume of investment in research and development in Catalonia grew of form continued between the year 1997 and 2007, going on of 877,8millones from Euros in 1997 to 2.908,7 millions in 2007.

In relative terms, the investment in research and development with regard to the GDP also grew of form continued during this period, happening from 0,92 % in 1997 to 1,48 %.
in 2007 and it is very over the state average, which placed in 1.27% the same year.

Catalonia is a clear example of territory compromised with the investment in R&D and innovation, so much from the public as private slope. For what it concerns to the Govern, initiatives as the National Agreement for the Research and the Innovation (PNRI), the Strategic Agreement for the Internationalization, the Quality of the Occupation and the Competitiveness of the Catalan Economy and Govern’s Plan are a good sample of the spirit and the bet that Catalonia is realizing to advance in this direction and to obtain a top economy to European level in terms of investigation and innovation in the horizon of the year 2010.

Govern's Plan 2007-2010 and the PNRI they establish the aim that Catalonia destines 2% of his GDP to investment in research and development in 2010. Likewise, the PNRI aims that in the year 2017 we will have to dedicate 3% of the GDP of Catalonia to activities of research and development.

At the same time, the private sector in Catalonia leads the investment in technological innovation that is key to explain his top position in the State. In 2006, Catalonia concentrated 21.41% of the investment in business innovation of the whole State and almost one of every four company innovative (22.52%) of Spain was located in Catalonia (11,129 in absolute values). This technological preferential positioning still is more evident in the field of the European patents, where Catalonia concentrated 32.44% of the total of state requests.

**Governance**

ACC1Ó is the Catalan agency for competitiveness that specializes in innovation, internationalization and attracting inward investment. ACC1Ó is part of the Catalan Ministry of Innovation, Universities and Enterprise.

ACC1Ó is the result of over 20 years of experience and expertise (CIDEM-COPCA) on the development of programmes and services to support enterprise.

With headquarters in Barcelona, ACC1Ó operates through its international network of 35 Business Promotion Centres worldwide to attract foreign investment for production in Catalonia and to provide advisory services, practical support and business opportunities to companies interested in expanding their business globally.

The aims of ACC1Ó are:

- To increase business productivity by improving three main factors: innovation, technology and talent.
- To promote the value of the products and services of Catalan companies in international markets (quality of exports).
- To increase the number of Catalan companies and products in international markets (improving extensive margin).

Through the network of 35 Business Promotion Centres around the world, ACC1Ó promotes the competitiveness of Catalan companies through internationalization, innovation and attracting inward investment.

ACC1Ó’s international network is a trampoline for Catalan companies with internationalization projects. It has more than 20 years of experience, is staffed by 125 professionals from 32 different countries, and worked on 770 projects for 504 Catalan
companies and organizations in 2008.

The competitions on innovation to regional level Catalonia has them and for this inside his annual budgets it has an endowment for these actions. These actions in quite moments are coordinated by the government of Spain.

ACC1Ó is coordinated by another entity dependent on the government of Spain named CDTI whose mission is to favor the innovation and that increases the competitiveness of the companies.

The politics of organization of ACC1Ó comes determined across the governing political party in this moment.

Policy

ACC1Ó fruit of the integration of the CIDEM and of the COPCA is the agency of Support to the Catalan Company and Industrialist of Catalonia is governed by the Law of Politics of Catalonia. In accordance with the prescriptions of this Law, the Statutes of the agency will develop the composition, the functions and the regime of operation of their organs of Government.

The Decree 51/2010, of 6 April, of approval of the Statutes of the Agency of Support to the Catalan Company establishes the organs of government that ACC1Ó govern. These two organs come off constituted officially on the 19th May of 2010, with the following functions:

Governing organ
The Governing organ is the organ of government that it has as main functions to plan, to supervise and to control the activity of the Agency of Support to the Catalan Company, favoring, in the terms established in their Statutes, the presence in their sinus of the interests of the economical and social actors who can work out affected for the public politics on the subject of support to the Catalan company.

Functions:
Briefing of the annual accounts and the final liquidation of the budget.
Approve the strategic Plan and plans of annual activity.
Approving of Annual Report of activities.
Approving of regulations of organization and internal regime.
Approving of the request of modification of the statutes and to move it|her to the counselor.
Approving of the preliminary sketch of budget.
Briefing about the normative projects that they affect in the area of performance of the Agency.

Board of Directors
The Board of Directors is the organ of government that it corresponds to the decision and direction of the activity of the Agency of Support to the Catalan Company.

Functions:
Sending the performance of the Agency of Support to the Catalan Company.
Establishing the programs and services, the criteria of goals fulfillment and the degree of efficiency in the formality.
Elaborating the preliminary sketch of budget.
Approving of the annual accounts and the final liquidation of the budgets.
Elaborating the annual report of activities.
Approving of the budgetary variations.
Approving of the bases of the calls of grants and help for the support and development.
Approving of the retributiu diet|regime of the staff.
Approving of the monthly states of budgetary execution.

**Support measure**

- **ESPAÑA**
- **ESTE**
- Region Cataluña
- NUTS Code ES51

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**Support Measure**

**Title of measure**

Measure to finance investment project into industry

**Full title**

Línia de préstecs en condiciones preferents SIE-ICF per al finançament de projectes d'inversió d'empreses industrials / Línia d'ajuts a la inversió industrial

**Duration**

From: 2009  
To: 2010

**Policy objectives**

- 1.3.2. Horizontal measures in support of financing  
- 4.1.1. Support to sectoral innovation in manufacturing

**Presentation of the measure**

The industrial sector is a key factor to the economic growth of Catalonia as an engine of development and job creation. Indeed, investment in capital goods by the industrial sector is one of the most significant contributions to economic growth.

However, the structure of the manufacturing sector in Catalonia, where SMEs are clearly the majority, it makes particularly sensitive on changes in the sector.
The main objective of this programme is to encourage investment projects of SME in industrial machinery and related services. This measure provides lending at 0% interest from the Financial Catalane Institute and Enterprise and Industry Department to finance investment projects in industrial machinery.

The beneficiaries are SME in industrial sector who want to renew or extend their equipments. Also this measure is focus on manufacturing companies that manufacture goods.

The activities supported are investment in goods made by industrial companies and services that renew and expand their productive assets. Also it is a must that goods will not be move out of Catalonia until three years have elapsed since its purchase.

Budget, source and type of funding

Currency: **EUR**

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<td>Other</td>
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Form of funding provided

- Grants
- Subsidised loans (including interest allowances)

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

**Evidence of outcomes based on evaluation and other evidence**

There has been a change on the way this measure gives support to companies. Due to financial problems, companies had experienced difficulties of getting access these funds. So, a change in this measure has been done. Right now, this measure gives grants to companies belonging the key sectors for the region.

**Do's and Don'ts**

First, regional stakeholders should make a strategical analysis to identify the main sectors or industries in their regions. Second, it must be defined a clear, and effective access, to funds for companies who belongs to those main sectors identified before. So that, companies with difficulties could get access to the measure without any restrictions.
This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

- ACCIO (Competitiveness for Catalonia)

Support measure

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Support Measure

Title of measure

Seventh Framework Programme R+D projects

Full title

Ajut per a la participació en projectes europeus d’ R+D del VII Programa Marc

Duration

From: 2009
To: 2011

Policy objectives

- 2.3.2. Indirect support to business R&D (tax incentives and guarantees)
- 4.2.1. Support to innovation management and advisory services

Presentation of the measure

In a world of global competition, it is necessary to encourage, as recommended by the European Commission, the collaboration and cooperation among companies and public and private research centers, technology centers and other agents with experience in FP7, so that companies can develop R&D projects in FP7 which could hardly be carried out individually.

One of the main problems in proposals of R+D projects FP7, it is the cost of the human resources needed to elaborate the proposals. Sometimes companies do not have free
human resources, in order to identify, prepare and present proposals to FP7 on time. Also another fact to take into account it is the hard competition of all projects submitted in obtaining the proposal approval.

The main objective of this measure is to giving support to Catalonia's stakeholders to participate in FP7. Also this measure try to foster and increase the cooperation and knowledge transfer among Catalonia’s stakeholders.

The beneficiaries are companies with headquarters and research organizations in Catalonia. Research organizations can be public and private universities of Catalonia, R&D centres, technological and hospitals centres.

The activities supported are the human resources dedicated to preparing the project proposal of R&D. Also the activities supported are the outsourcing activities and other activities related to preparing the proposal.

An example would be the preparation and drafting a proposal to the FP7 by a consortium of three companies from three European countries and two European universities. The Catalan company will lead and manage the coordination of the proposal, in addition to the final writing of the proposal. This requires the dedication of two people for two months, in addition to the outsourcing of some parts of the proposal to a company specializing in the management of FP7 for a better advice. They will also be necessary to perform physically reunions, and the contrast of the proposal by the officers of the PF7.

Budget, source and type of funding

Currency: EUR

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Form of funding provided

- Grants

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

**Evidence of outcomes based on evaluation and other evidence**

It is not clear how to measure the level of participation in European proposals, and all work to be needed in a proposal to get submit it on time.

**Do's and Don'ts**
Sometimes the European calls close after the deadline set by the measure, and proposers cannot always certified and submit the application for this supporting measure on time and this penalize them, as that they cannot not get the aid from the public administration.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

- ACC1O (Competitiveness for Catalonia)

Support measure

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Support Measure

Title of measure

New Technology-Based Business (NEBTs)

Full title

Noves Empreses Base Tecnològica (NEBT)

Duration

From: 2009
To: 2010

Policy objectives

- 4.3.1. Support to innovative start ups incl Gazelles
- 2.3.1. Direct support of business R&D (grants and loans)
- 3.1.1. Awareness creation and science education

Presentation of the measure

The presence of innovative companies and the ability to generate new projects business
are key factors to improve productivity and therefore achieve high rates of economic growth. In particular, companies based on technology can develop an important role because they are a basic mechanism to achieve the transmission of knowledge and technological innovation, and generating highly qualified jobs.

The main objective is to encourage of creation of new technology-based companies. And its specific objective is to facilitate development of technology-based business projects.

The beneficiaries are technology-based companies, with two years of life, and establishment operating in Catalonia. It is called technology-based project when it has a technology component as a differential basis of their business model.

The activities supported are all related to staff directly involved with the consolidation strategy, equipments, consultancy and other external activities considered as necessaries to achieve the business consolidation and they are directly linked to business strategy.

Budget, source and type of funding

Currency: EUR

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</table>

Form of funding provided

- Subsidised loans (including interest allowances)

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

**Evidence of outcomes based on evaluation and other evidence**

This type of measures always ask for guarantees in order to have access on it. However, it should not to be focus on that, due to companies of this size do not have an easy access and sometimes they just have a good business opportunity.

**Do's and Don'ts**

The creation of start-up companies based on technology, it is a complex process with difficulties of coordination between the agents involved, and also it carries a large risk and uncertainty because they find themselves in emerging sectors. Therefore, regional stakeholders should take a leading role in promoting a innovative culture and encourage
and facilitate the creation and development of these new business initiatives.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

- ACCIO (Competitiveness for Catalonia)

Support measure

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Support Measure

Title of measure
R&D Collaborative Projects

Full title
Nuclis cooperatius R+D

Duration
From: 2007
To: 2010

Policy objectives

- 1.3.1. Cluster framework policies
- 2.2.3. R&D cooperation
- 3.3.2. Recruitment of skilled personnel in enterprises
- 2.2.2. Knowledge Transfer

Presentation of the measure

Nowadays, one of the main problems is the poor cooperation between companies in conducting R&D projects. That is why it is necessary to involve projects made with at least three companies, and the outsourcing of research centers and technology centers.

The main objective is to encourage the realization of R&D collaborative projects in terms
of industrial research and experimental development. This measure would help in obtaining new or improved products and processes with respect to existing technology.

The beneficiaries are groups of at least three private companies, not linked between them and with establishment in Catalonia. Companies must develop the project and participate in its funding. Also these groups of companies should have legal personality constituted before of the filing date of the request, otherwise groups must be governed by a contractual document.

The activities supported are aimed at acquiring new knowledge, applying new technologies, build new products or processes, substantial improvement in products, processes or services exist. Also the activities as acquisition, combination, configuration and use of existing knowledge and techniques, the scientific, technological, business or other type, with a view to the preparation of plans and structures or product designs, processes or new services, modified or improved. Even the activities can be the preparation of project designs, plans and other documentation provided without intended commercial uses.

One example can be a collaborative project between three companies and a tecnological centre. The project is about solving an existing problem in a particular sector, which can not be solved by a single company but through collaboration with other companies in the same sector, for example the ultrafast laser industrial sector. Each of the companies is an expert in a particular area of problem solving and with the collaboration of a tecnological center is able to provide a global solution to the problem. The technology center conducts research on the study of new technologies in ultrafast lasers, one company develops and integrates new technology into a prototype and another one develops ultrafast laser on industrial scale validated through an industrial prototype.

Budget, source and type of funding

Currency: EUR

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</table>

Form of funding provided

- Grants

Policy learning
Extent to which the measure can be considered as a success and worthy of policy learning

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact.

Evidence of outcomes based on evaluation and other evidence

The main evidence in the results is the mass acceptance that this measure has had in companies. There have been a total of 84 high-risk technology projects funded.

Do's and Don'ts

The most important factor that regional stakeholders should be aware is do not be restrictive with the number of companies involved in a collaborative project. This fact should be fixed by the needs or problems to be solved in a project and which company gives the suitable expertise to solve the problem.

Also it is important to know the strategic sectors or areas on which the region want to be focused. So, through this policies, the region could give priority support to those sectors previously identified and relevant in terms of economical and competitive needs.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

- ACCIO (Competitiveness for Catalonia)

Support measure

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Support Measure

Title of measure

Innovative Enterprise
Full title
Innoempresa Innovació

Duration
From: 2007
To: 2013

Policy objectives

- 2.3.1. Direct support of business R&D (grants and loans)
- 5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns)
- 2.2.2. Knowledge Transfer

Presentation of the measure

The main objective is support individual innovation projects carried out by SME (Small Mediu Enterprise), understanding innovation as the introduction of a new product (good or service) or improving this significant, a new process, a new marketing method or a new organizational method that provides competitive advantages to the company.

The beneficiaries would be innovative projects carried out by SMEs companies located in Catalonia.

This programme provides grants to companies in order to subsidize external collaborations and tangibles and intangibles investments.

The activities supported are product innovation, process innovation, marketing innovation and organizational innovation. This would be projects that aims to disassociate themselves from the competition looking for new ways of doing things, new ways of organizing, new features and uses for products, new ways cultivate and use the company's internal knowledge and implementation of new marketing methods.

Projects supported only could be product innovation that reach the market (marketing the new product) or in the case of process innovation, marketing organization, where these are used effectively within the framework of the operations of the company, which must prove the justification of the supported activity.

Budget, source and type of funding

Currency: EUR

Source of funding  2007  2008  2009  2010
National public funds 2,000,000 3,200,000 2,200,000 500,000
Regional public funds
EU Structural funds
Private funds
Other
Form of funding provided
- Grants

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

**Evidence of outcomes based on evaluation and other evidence**

One of the most positive factors could be how enterprises have learned to reorganize its value chain to be more competitive

**Do's and Don'ts**

At the moment of throwing actions as this one it is necessary to bear a series of factors in mind as:

Budget that is had and how many requests are going to appear.
Technological level that is going to be necessary in order that a request is approved.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible
- ACC1O (Competitiveness for Catalonia)

**Support measure**

- **ESPAÑA**
- **ESTE**
- Region Cataluña
- NUTS Code ES51
Support Measure

Title of measure
Cooperative Innovative

Full title
Innoempresa collaboració

Duration
From: 2007
To: 2013

Policy objectives

- 1.3.1. Cluster framework policies
- 2.2.3. R&D cooperation
- 5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns)
- 2.2.2. Knowledge Transfer

Presentation of the measure

The main objective is support collaborative innovation projects carried out by SME (Small Medium Enterprise), understanding innovation as the introduction of a new product (good or service) or improving this significant, a new process, a new marketing method or a new organizational method that provides competitive advantages to the company.

The beneficiaries would be collaborative innovative projects, which includes a minimum of three companies related to the same value chain.

The activities supported are innovation activities or projects that aims to disassociate themselves from the competition looking for new ways of doing things, new ways of organizing, new features and uses for products, new ways cultivate and use the company's internal knowledge and implementation of new marketing methods.

Budget, source and type of funding

Currency: **EUR**

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Form of funding provided

- Grants

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact.

**Evidence of outcomes based on evaluation and other evidence**

One of the most positive factors is to see how enterprises have learned to cooperate thinking together and market oriented.

**Do's and Don'ts**

The selection of collaborative innovation projects should not to be restrictive with the requirement of involving companies that belong to the same value chain. It is possible to have an innovative process among companies not involved in the same sector or even in the same industry.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- ACCIO (Competitiveness for Catalonia)

**Policy document**

- **ESPAÑA**
- **ESTE**
- Region Cataluña
- NUTS Code ES51
Policy Document

PRI 2010-2013 (Research and Innovation Plan for Catalonia)
PRI 2010-2013 (Pla de Recerca i Innovació de Catalunya)

Organisation responsible

Ministry of Enterprise and Labour

Other organisation(s) involved

Ministry of Enterprise and Labour

ACC1O (Competitiveness for Catalonia)

Content

The 2010-2013 Research and Innovation Plan (PRI) is the instrument the Administration of the Government of Catalonia uses to perform the task of planning, promoting and coordinating Catalonia's research and innovation.

This Plan covers a period lasting up to 2013, with the aim of synchronising it with European planning (EU 7th Framework Programme for Research and Technological Development (2007-2013)).

The 2010-2013 PRI sets out the following priorities:

- To build three transversal lines for action into policies and actions: SMEs: because of their numbers and strategic importance for the country; The service society: because of its present and future weight; Internationalisation: a decisive factor for knowledge, innovation and economic growth.

- To deal with the weaknesses of the research and innovation system and take advantage of its strengths.

- To take into account and prioritise: Shaping demand (social innovation regulation, public procurement for innovation); Directing political action in research and innovation at challenges; Starting from an entrepreneurial and innovative position.

Year of publication

2010

Link to website

Link: http://www.gencat.cat/diue/departament/estructura/organismes ...

Policy document

• ESPAÑA
**Policy Document**

ACC1Ó Plan 2009-2013
Pla d'ACC1Ó 2009-2013

**Organisation responsible**

ACC1Ó (Competitiveness for Catalonia)

**Content**

ACC1Ó strategy in the coming years is defined in the Plan 2009-2013. Catalan companies are in a changing environment because of technology changes, European market consolidation and growing market globalization. The 2009-2013 Plan support differential elements which will put catalan companies on top of global market.

The priority goals for 2013 are:

- A 20% increase in number of innovative companies.
- Increase by 20% the number of regular exporters.
- Arrive at 400 multinational production.
- Attract 200 high value investments in Catalonia.
- Reaching a level of business investment in R & D of 1.6% of GDP.
- Increasing the weight of technological exports to 66% of the total.
- Create 1,000 technology-based companies.
- Tripling Catalan participation in EU Framework Programme VII regarding the above.

These goals will be achieved consolidating a talent-based organisational model; adopting a by-project structure that affords ACC1Ó flexibility and the capacity to adapt to the new needs of its clients and designing and implementing actions for the promotion of business competitiveness.

**Year of publication**

2009

**Link to website**
Policy document

- España
- Este
- Region Cataluña
- NUTS Code ES51

Policy Document

CARI (Catalan Agreement on Research and Innovation)
PNRI (Pacte Nacional per a la Recerca i la Innovació)

Organisation responsible

Ministry of Enterprise and Labour

Other organisation(s) involved

Ministry of Economy and Knowledge

Content

PREMISE: a new model of socioeconomic progress based on education, research and innovation, which are to become the highest structural priorities on the political, social and economic agenda of the country and of its agents.

PURPOSE: to generate high levels of prosperity and to progress towards a society of great wellbeing that lives within environmentally sustainable limits.

COMMITMENT: a shared roadmap in research and innovation for the coming years that sets the strategy, challenges and objectives as well as the commitments of the agents willing to dedicate themselves to carrying out a synergic joint action that is stable on the long term.

Year of publication

2008

Link to website

http://www.acc10.cat/ACC1O/cat/empresa-ACC1O/agencia/
Organisation

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Organisation

Talencia (Catalonia Research)

Fundació Institució Catalana de Suport a la Reserca

Link: https://www.fundacioreserca.cat

Pg. Lluís Companys 23
BARCELONA,
08010

Mission

The main mission of Catalan Foundation Institute of Research Support is to improve the social recognition of science by carrying out dissemination activities of Catalan research and promoting new ways of cooperation between the public and private research activities in Catalonia.

Activities

The organisation implements and is involved in dissemination of scientific activities in Catalonia, aimed at the entire society, especially young people, promoting scientific careers and monitoring the results and scope of research.

In the area of cooperation between the public and private research activities, the Foundation promotes private funding of R & D, public-private partnership in research activities, mixed funds for research and provides incentives for new funds or altruistic donations to encourage research.

Scientific communication is essential for citizens to participate in the debate on the applications of scientific knowledge and appreciate the importance of future results. It is important to ensure that everyone can participate in science and research because they are part of the culture of all citizens.

Therefore, the Foundation works to increase awareness and appreciation of science and research in all social spheres of Catalonia, by disseminating the scientific activity carried out in Catalonia, facilitating the public understanding of science, providing incentives, training and support for dissemination, and promoting interest in research and scientific studies.
Likewise, Catalan Foundation Institute of Research Support is working to consolidate its position as a reference expert and evaluator of the research system in Catalonia at an international level.

The organisation works together with ACCIÓ in a global programme for promotion of research and commercialization of the technology supply produced in Catalonia (exploitation of patents, generating spin-offs, etc...). This collaboration aims at increasing the creation of university-based companies through more knowledge transfer from universities and research centers in the Catalan productive sector.

Organisation

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

Organisation

Southern Catalanian Knowledge Hub Association

Associacio; Pol de Coneixement Catalunya Sud

Link: http://www.ceics.eu/index.html

Escorxador
Tarragona,
43003

Mission

The purpose of this association is: a) To establish alliances between the administration, universities, research bodies and the productive and healthcare sectors in order to promote strategies to provide impetus to joint projects within the framework of the CEICS b) To promote the CEICS as a strategic focal point for regional research centres, science and technology parks and the commercial and health care sectors through five specialized subcampuses: chemistry and energy; nutrition and health; oenology; tourism; and culture and heritage. c) To promote the creation of an international hub for the promotion of the knowledge society with strong bonds to other Spanish and international centres so that CEICS can contribute to human, social and economic development base on knowledge. d) To increase international influence and to strengthen the generation and transmission of knowledge to member institutions which make up the CEICS strategic alliance.

Activities

In general terms: a) Symposia, conferences and meeting of all types and formats b) Studies and reports within the framework of the objectives of the association c) Assistance through the efforts of the association's offices, association work groups and association advisory commissions d) Informational and communication actions directed at communications media of all types and formats e) Organization of actions related to
Organisation

ACC1Ó (Competitiveness for Catalonia)
ACC1Ó (Competitivitat per l’empresa)

Link: http://www.acc10.cat

Passeig de Gràcia 129
BARCELONA,
08008

Mission

To make Catalonia a leading economy in the global market by providing its businesses with a competitive edge.

Activities

ACC1Ó was born in a changing time. There are a new scene that generates environments of creativity and innovation and where the companies will need a global and network goals.

ACC1Ó activities are focusing on coordinate in efficient way the tools to support innovation and internationalization. The organisation works to reach in Catalonia an important economy for global markets, obtain competitive differentiation for companies and be recognized over the world as a referent public policy for companies' development. ACC1Ó goals are divided on four priority groups:

- To qualify. To strengthen business structures on: strategic management, TICS and qualify staff. ACC1Ó expect contribute to carry out 15.0000 projects to support the business competitiveness.

- To differ from the competition. To provide tools for support the companies competitiveness using differentiation: opening-up new markets, innovation process and both of them (internationalisation and innovation, i+i).

- To grow up. To provided tools to help catalane companies to reach the optimum size. ACC1Ó tools for this goal are: financing innovation, internationalisation and new investment; to support corporate entrepreneurship and to support relevant projects to Catalonia.
To be connected. To offer new initiatives to achieve better presence of Catalan companies at global networks and to stimulate the activity of global companies at Catalonia.

ACC1Ó corporative values is to offer the better service to companies. Its daily work is focus on solve companies problems search for collaboration projects, adapt these projects to business activities and simplify procedures.

ACC1Ó offer these services in a totally digital way, through website (www.acc10.cat) and friendly website. Also, website www.anella.cat is a website to share knowledge and experience between innovation and internationalization professionals.

ACC1Ó works for company groups necessities through sectorial resemblance division or common objectives division. On the other hand, ACC1Ó offer individual services. In this sense, ACC1Ó provides advisory services and assistance adapted to the needs of companies.

Organisation

- ESPAÑA
- ESTE
- Region Cataluña
- NUTS Code ES51

CERCA, Research Centres of Catalonia

Centres de Recerca de Catalunya (CERCA)

Link:

Pg. de Gràcia 105
BARCELONA,
08008

Mission

The CERCA Institution is a technical service of the Administration of the Government of Catalonia tasked with supervising, supporting and facilitating the activities of the research centres in the CERCA system. It has been constituted as a public sector foundation, under the supervision and control of the Ministry of Innovation, Universities and Enterprise. CERCA's purpose is to ensure that the Catalan system of research centres is fully developed; to encourage and maximise synergies, co-ordination and strategic co-operation between institutes; to improve the positioning, visibility and impact of the research carried out and to facilitate communication between public and private agents

Activities

The aims that are chased are the following ones:
• To increase the competitive level so much statewide like internationally of the centers of investigation, looking that are a center of reference.

• Diffusion and promotion of the good practices and achievements obtained by the centers of investigation so much to level of acquired knowledge, transferred and investigators that form it.

• To promote the synergies enter the diverse centers of investigation.

• To support the transfer of technology and knowledge towards the sector deprived of the company, in order that a major impact is achieved in the industry.

• To promote I+D between all the sectors, that is to say centers of investigation, universities, companies..

One of the clearest examples of the benefits that are obtained they are the continuous existing collaborations between the technological centers and the companies in diverse strategic summons of the Catalan administration
## Appendix D \ Statistical data

<table>
<thead>
<tr>
<th>Indicator - Catalyst (ESPI)</th>
<th>Source</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Population (Total)</td>
<td>7 238 051,00</td>
<td>2009</td>
</tr>
<tr>
<td>3. Degree of Urbanisation (Share of households in densely populated area (&gt; 500 inhabitants/km2))</td>
<td>60,01</td>
<td>2009</td>
</tr>
<tr>
<td>4. Share of Seniors (age 65+) in Population</td>
<td>15,01</td>
<td>2007</td>
</tr>
<tr>
<td>5. Regional GDP (in current EUR)</td>
<td>184 094,80</td>
<td>2000</td>
</tr>
<tr>
<td>6. Regional GDP (in Purchasing Power Parities)</td>
<td>209 774,00</td>
<td>2000</td>
</tr>
<tr>
<td>7. Growth of Regional GDP (Real Growth at Market Prices)</td>
<td>3,70</td>
<td>2007</td>
</tr>
<tr>
<td>8. Per Capita GDP (in current EUR)</td>
<td>26 532,70</td>
<td>2006</td>
</tr>
<tr>
<td>10. Growth of Regional Per Capita GDP</td>
<td>5,80</td>
<td>2006</td>
</tr>
<tr>
<td>12. Total Economically Active Population (Head Count)</td>
<td>3 849,00</td>
<td>2008</td>
</tr>
<tr>
<td>16a. Share of Employment in Agriculture, Hunting, Forestry and Fishing (in %)</td>
<td>1,87</td>
<td>2003</td>
</tr>
<tr>
<td>16b. Share of Employment in Industry (including Construction) (in %)</td>
<td>33,047</td>
<td>2003</td>
</tr>
<tr>
<td>16c. Share of Employment in Services (Other Services including Trade, O, Q) (in %)</td>
<td>27,004</td>
<td>2003</td>
</tr>
<tr>
<td>16d. Share of Employment in Services (Business Service Sectors, M) (in %)</td>
<td>14,735</td>
<td>2003</td>
</tr>
<tr>
<td>16e. Share of Employment in Services (Public Administration and Defences, L, Q) (in %)</td>
<td>22,847</td>
<td>2003</td>
</tr>
<tr>
<td>17. Unemployment Rate (in %)</td>
<td>9</td>
<td>2009</td>
</tr>
<tr>
<td>18. Change in Unemployment Rate</td>
<td>-5,71</td>
<td>2006</td>
</tr>
<tr>
<td>19. Share of Long Term Unemployment in Total Unemployment (in %)</td>
<td>16,46</td>
<td>2008</td>
</tr>
<tr>
<td>20. Change in Long Term Unemployment Rate</td>
<td>-17,20</td>
<td>2009</td>
</tr>
<tr>
<td>22. Gross Expenditure on R&amp;D per GDP (in %)</td>
<td>1,42</td>
<td>2003</td>
</tr>
<tr>
<td>23. Share of Public Expenditure on R&amp;D (Government Expenditure in GERD) (in %)</td>
<td>13,520</td>
<td>2007</td>
</tr>
<tr>
<td>24. Share of Public Expenditure on R&amp;D (Higher Education Expenditure) in GERD (in %)</td>
<td>23,300</td>
<td>2007</td>
</tr>
<tr>
<td>25. Share of Business Expenditure on R&amp;D in GERD (in %)</td>
<td>62,800</td>
<td>2007</td>
</tr>
<tr>
<td>26. EPO Patent Applications (by Priority Year)</td>
<td>275,212</td>
<td>2006</td>
</tr>
<tr>
<td>27. EPO High-tech Patent Applications (by Priority Year)</td>
<td>31,766</td>
<td>2006</td>
</tr>
<tr>
<td>28. Share of Knowledge Workers (Share of HR and Economically Active Population) (in %)</td>
<td>17,604</td>
<td>2006</td>
</tr>
<tr>
<td>29. Share of Employment in Medium-high and High-tech Manufacturing (in Total)</td>
<td>9,603</td>
<td>2003</td>
</tr>
<tr>
<td>31. Share of Population Involved in Life-long Learning (in %)</td>
<td>9,702</td>
<td>2003</td>
</tr>
<tr>
<td>32. Share of Households with Broadband Access (in %)</td>
<td>66</td>
<td>2003</td>
</tr>
<tr>
<td>34. Accessibility (1=highly below average; 2=below average; 3=average; 4=above average; 5=highly above average)</td>
<td>3</td>
<td>2005</td>
</tr>
<tr>
<td>35a. Population between 15 and 64 years in 2020 (in %)</td>
<td>66,792</td>
<td>2005</td>
</tr>
<tr>
<td>35b. Population with 65 years and more in 2020 (in %)</td>
<td>21,364</td>
<td>2005</td>
</tr>
<tr>
<td>36. Spatial typology (2: Iv, Rion, 1: Border)</td>
<td>11</td>
<td>2003</td>
</tr>
<tr>
<td>37. Settlement Structure Typology of the communities: 1. dense populated with large centres; 2. densely populated with large centres; 3. dense populated</td>
<td>2,189</td>
<td>1989</td>
</tr>
<tr>
<td>39. New Member of SMEs innovating expenditures of all enterprises as a percentage of turnover (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,272</td>
<td>2005</td>
</tr>
<tr>
<td>39. SMEs innovating in-house as a percentage of all SMEs (normalised scores within 0 (lowest) to 1 (highest) range)</td>
<td>0,531</td>
<td>2005</td>
</tr>
<tr>
<td>40. Innovative SMEs collaborating with others as a percentage of all SMEs (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,302</td>
<td>2005</td>
</tr>
<tr>
<td>41. SMEs introducing product or process innovations as a percentage of all SMEs (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,585</td>
<td>2005</td>
</tr>
<tr>
<td>42. SMEs introducing marketing and/or organizational innovations as a percentage of all SMEs (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,485</td>
<td>2005</td>
</tr>
<tr>
<td>43. Share of innovating SMEs where innovation has a high impact on reducing labour costs per unit of output</td>
<td>0,735</td>
<td>2006</td>
</tr>
<tr>
<td>44. Share of innovating SMEs where innovation has a high impact on reducing materials and energy per unit of output</td>
<td>0,762</td>
<td>2005</td>
</tr>
<tr>
<td>45. New-to-market sales of innovative SMEs as a percentage of turnover of all SMEs (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,350</td>
<td>2006</td>
</tr>
<tr>
<td>46. New-to-firm sales of innovative SMEs as a percentage of turnover of all SMEs (normalised scores within 0 (lowest) to 1 (highest))</td>
<td>0,625</td>
<td>2006</td>
</tr>
</tbody>
</table>

Sources: Eurostat, ERFON, Community Innovation Survey, RIMAM Calculation