Regional Innovation Monitor

Regional Innovation Report (Region of Navarre)

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

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PREFACE

The Regional Innovation Monitor (RIM)\(^1\) 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
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Executive Summary

1. Introduction: Main recent trends in the Regional Innovation System

In the 1960s, Navarre economy experienced a deep transformation from an agrarian structure towards industrial modernization. This boosted economic growth for the decades that followed. Nowadays Navarre is ranked 32nd out of 271 European regions for income per capita. Navarre represents 1.36% of the Spanish population and contributes 1.68% of Spanish GDP. 2.4% of the overall Spanish expenditure on R&D comes from Navarre.

The current economic crisis has produced a recession and an increase in unemployment in Navarre. Nevertheless, the percentage of unemployment in 2009 was 10.53% which is less than for the whole of Spain (18.83%). Yet, due to the strength and diversification of its regional industrial market, Navarre registered the highest GDP growth of Spain in 2010 with a 1.2% increase which is close to the European average GDP growth of 1.8%. This trend is clearly different from the lack of growth in Spanish GDP in the same year (-0.1%).

Regional effort on RTD and innovation in Navarra has experienced a remarkable evolution in the last seven years since its regional R&D expenditure as a percentage of GDP has increased from 0.9% in year 2002 to 2.13% in year 2009. This can be attributed to a steady regional innovation support policy. Such RTD effort is by far higher than the Spanish average rate of 1.38% and slightly higher than the EU27’s rate of 2.01%. It is significant to notice that, according to the Barcelona European Council target of 3% GDP spent in RTD, where one third should be public expenditure and two thirds private expenditure, Navarre private RTD expenditure is approximately 68.84%, while 9.4% comes from public administration and 21.67% from higher education.

2. Major innovation challenges and policy responses

A sustainable economic growth model obliges Navarre to further transform the region’s productive model towards a more intensive knowledge based economy and to increase regional innovation stakeholders’ collaboration with counterparts at national, European and world level. In order to improve the competitiveness of Navarre enterprises, there have been identified the following specific targets:

Challenge 1: Intensify the transfer of RTD results into enterprise

The first challenge is to intensify technology transfer from research organisations towards enterprises and to boost knowledge transfer among enterprises in order to reach indicators in these particular fields which are close to the ones of leading countries instead of remaining close to European average rates.

Challenge 2: Enhance insertion of talented people in the business sector

It is crucial to facilitate SMEs’ access to technologically skilled people so that they are better able to assimilate and take-up the results generated by research organisations. The capacity to integrate highly qualified and skilled people into the region’s innovation system, and particularly in SMEs, must be increased.
Challenge 3: Increase the number of employees and companies in the knowledge intensive services sector

Another relevant challenge is to reinforce the regional number of employees and companies working on knowledge intensive services. This will enable the increase in the number of patent applications and boosts the dissemination and take-up of a higher number of both technological and non-technological innovations that improve the region’s business competitiveness.

3. Innovation policy governance

The economic independence of Navarre and the autonomy of its tax regime have funds to finance the technological innovation programmes successively designed by the Innovation Department (equivalent to regional ministry of Innovation) of the Government of Navarre.

The first RTD and innovation aids regional regulation was elaborated in 1982 and has been the base for the innovation support programmes defined in the subsequent Technological Plans. The first Technological Plan was established in 2000-2003 with a budget of €120m. The second Technological Plan was settled between 2004 and 2007 with a €140.90m budget, which was significantly increased in the third Technological Plan (2008-2011) with € 228.90m. For the elaboration of these successive Technological Plans, the Innovation Department of the Government of Navarre has regularly relied on external experts and on the regional innovation system stakeholders who have analysed and taken into account the regional needs of the industrial and socioeconomic infrastructure in order to design appropriate actions which reach the targets and indicators set out in the Technological Plans.

The regional Innovation Policy is designed and managed by the Innovation Department of the Government of Navarre. It obtains support from intermediate agents such as ANAIN (the regional innovation agency) or CEIN (regional business and innovation centre). ANAIN plays a more active role in promoting collaboration among regional scientific, technological and business agents and in boosting international RTD and innovation cooperative projects. Furthermore, ANAIN manages the Innovation Park of Navarre (a scientific and technological environment for the development of R&D activities within enterprises and institutions) and the RETECNA network (a regional network formed by nine public and private RTD organisations which aim at enhancing synergies, joint projects development and interaction with other networks). CEIN is oriented to encouraging entrepreneurship and disseminating an innovation culture among companies.

At a regional level, the Innovation Department of the Government of Navarre collaborates in defining and implementing its innovation policies with other regional departments or ministries of the Government of Navarre such as the Education Department and the Rural Development and Environment Department. At a federal level, it mainly collaborates with the Spanish Ministry of Science and Innovation and its innovation national agency CDTI, and with the Spanish Ministry of Industry. At the European level, it participates in different European projects together with other innovation regional authorities from other countries. This facilitates contact and exchange with other regions and European administrations to jointly implement innovation policies and share good practices.

Navarre has several public and private venture capital firms that finance both early stage companies and consolidating companies. The Society for Development of Navarra (SODENA) is a public owned venture capital firm consolidating and internationalising business projects located in Navarra, while
START UP CAPITAL (also public-owned) is more oriented to finance new technology based firms or start-ups.

In May 2008 a process for defining a new overall strategy plan for the economic development of Navarre in the next decades called the MODERNA plan, was launched by setting-up a wide regional bottom-up consultation approach through systematic workshops involving a large group of regional socioeconomic representatives, innovation stakeholders and led by the regional government. MODERNA is a new Model for the Economic Development of Navarre. Its core objective is to undertake a new knowledge-based socioeconomic transformation of the region (the first significant socioeconomic transformation took place in the second part of last century), setting up objectives for the year 2030 that ensure a sustainable economic growth and improve the positioning of Navarre in a European and global context. The plan’s strategy has long-term objectives, future innovative sectors for the region, and changes on horizontal factors. All of this is detailed through action plans and a monitoring and assessment system that aims to improve the productive context of the region.

4. Conclusions: future actions and opportunities for innovation policy

The chances of maintaining the global competitiveness of Navarre economy in the medium and long term is likely. The requisites are met including: regional enterprises further adopting open innovation schemes by systematically reinforcing their collaboration with research organisations and other enterprises both in the regional context and at an international level. Navarre needs to further boost and support the recruitment of highly qualified personnel in firms and research organisations so that they reinforce their abilities and are better able to take advantage of product, process and organisational innovations.

It is necessary to intensify sectoral networks which are capable of establishing and exploiting common synergies. According to the MODERNA plan or strategy, there are some traditional industrial sectors like the automotive or building sectors which have a relevant presence in the industry of Navarre and that need to be reinvented and improved. Further, there are other sectors like renewable energies, and food-processing which are considered as strategic for the region and need to keep growing. Finally, there are other emerging sectors like medical biotechnology, medical devices or mechatronics which are seen as promising sectors and need to be further promoted.
1. Main Trends and Challenges in the Regional Innovation System

1.1 Recent trends in regional economic performance

From 1960 to 1975, the economy of the region of Navarre evolved from a productive structure mainly based on the agricultural sector towards industrial modernisation. This modernisation attracted foreign investment which led to a 40% increase in industrial participation in the regional economy. Between 1990 and 2004, Navarre’s economy was competed on a global scale due to the renewable energy sector which nowadays supplies 65% of the consumed electrical energy of Navarre.

Taking into account the economic indicators GDP growth and percentage of employment, Navarre is in a good position compared with other European regions.

Between 2007 and 2008, Navarre experienced the second largest economic growth in the region which is third in the country in terms of GDP per capita. In fact, between 2004 and 2009, Navarre was 32nd out of 271 European regions with the best income per capita. This can be attributed to the constant growth in employment and quality derived from its economic strategy.

Navarra exports have registered a significant increase in the last few years, reaching more than €5b per year in 2009, with an export-import coverage rate of 153% compared to the Spanish export-import coverage rate of 75%.

Nowadays, more than 120 multinational companies coming from some 20 countries and belonging to very different sectors have productive plants in Navarra.

In the actual context of economic crisis, Navarre has experienced a recession and a reduction of employment. The percentage of unemployment in the last three-month period of 2009 was 10.53% (yet, below the Spanish average unemployment of 18.83%, but above the European unemployment rate of 9.5%). The preceding environment of prosperity makes this evolution of regional unemployment even more painful.

Nevertheless, the first estimations of GDP annual growth made by the Spanish Statistics Institute-INE for the year 2010 showed that Navarre registered the highest regional annual GDP growth (1.2%) followed by other regions such as Basque Country and Castilla y León (both with a 0.8% GDP increase) while Spanish GDP decreased 0.1% in 2010. Yet all these increases were below the average European GDP growth (1.8%). In the case of Navarra, this growth was mainly due to the contribution of the automotive sector and, to a lesser extent, to the metallurgy related industry of the region.

Compared with the economic situation of Spain as a whole, all the above positive values from Navarre have been generated as a consequence of a larger industrial development (including the food-processing industry), and a relevant service sector deployment, together with a minor dependence from the building sector or the agrarian structures, unlike other regions in Spain.
1.2 Recent trends in regional innovation performance

Navarre represents 1.36% of the Spanish population, contributes to 1.68% of Spanish GDP, and implements 2.4% of the total Spanish expenditure on R&D.

In 2009, the General Expenditure on R&D over GDP (GERD/GDP) in Navarre was 2.13%, and in 2008 it was 1.92%. These values positioned the R&D effort of Navarre ahead of Madrid or Basque Country regions (both with 2.06% of GDP spent on R&D). Spain registered an average GERD/GPD of 1.38%, which represents a 0.8% of reduction compared with the previous year. Therefore, Navarre is situated in a good position with respect to the European average (which is of 2.01%) and to the revised Barcelona EU Council target (which was redefined to 3% of GERD/GDP for year 2020).

Navarre was also the Spanish region with the highest GERD/GDP growth in year 2009 compared to previous year, with an 8.2% increase.

It is worth mentioning that 68.84% of total R&D expenditure of Navarre is made by enterprises, while 21.67% is spent by higher education and 9.4% by public administration.

All the profiles of regional stakeholders (enterprises, public research centres – including the Spanish National Research Centre on Renewable Energies-CENER located in Navarre- and universities) have experienced an increase in their RTD expenditure in 2009. The number of personnel working on RTD activities also increased accordingly in this year across different stakeholders.

Another factor worth mentioning is that Navarre business RTD expenditure made by manufacturing enterprises is higher than the RTD expenditure made by high-technology services enterprises, while at national level the RTD expenditure is balanced between both profiles of companies.

A weak point in regional innovation performance is the limited number of patents applied to the European Patent Office (EPO). Except in year 2004, in which the number of European Patents applied per million population was equal to the EU27 average (some 110 EPO patents per million population), this indicator is usually lower than the European average; EPO patents per million population...
population applied in Navarre usually ranges from 40 to 60 applications per year. The resulting value is consistently higher than the Spanish one.

Navarre has a population of 620,337 inhabitants of which some 28,000 people are university students distributed among the Public University of Navarre (UPNA), the University of Navarre (private) and the National University of Distance Education (UNED). This high concentration of university graduates has propitiated that Navarre R&D personnel (in full time equivalent) represents a 20‰ of the region’s working population. Also employment in high-tech manufacturing and high-tech service sectors represent 11.2% of regional employment which is above the Spanish average of high-tech employment (6.4% of national employment) and nearby the European rate (13% of European employment).

All the above achievements can be considered the result of a long period of both public and private support to innovation and reflect the commitment of the region to higher education.

It can be concluded that economic growth in Navarre rests upon three main pillars:

- Accumulation of productive factors especially capital equipment and qualified human resources.
- Innovation efforts executed both by private and public sectors.
- Interaction between productive factors and technological innovation.

Because of the regional innovation policy support, Navarra is 76th out of the 203 innovative regions of the European Union, according to the European Innovation Scoreboard (year 2006). At sectorial level it is also interesting to highlight some innovation features:

- The automotive sector is one of the largest industrial sub-sectors in Navarra with many innovative plants owned by foreign multinationals. This sub-sector really on a international level and has broad knowledge of innovative production systems, organisational tools and suppliers with an enormous capacity in fabrication and development.

- In the last 15 years Navarre has attained worldwide recognition in the renewable energy sector. Its regional energy planning is being imitated by several Spanish and European regions. 62.5% of Navarre electricity demand is satisfied with renewable energies while the Spanish average is 25.5%. The Spanish national research centre for renewable energies CENER (Centro Nacional de Energías Renovables-Spanish National Centre of Renewable Energies) is located in Navarre with more than 200 researchers and technology infrastructures of last generation. The renewable energy sector of Navarra, with more than 6,000 people working in it, has an extensive technological capacity which has triggered technology developments on special materials manufacturing, electronics and control systems.

- The food-processing sector is one of the leading industrial sub-sectors in Navarre, contributing to 16% of regional industrial GDP. It employs more than 12,000 people. The Spanish national centre for food-processing technology and safety CNTA (Centro Nacional de Tecnología y Seguridad Alimentaria) is located in Navarre. This sub-sector increased its GDP growth 2.6% in year 2010, which means to double the GDP growth of the total Navarre economy (1.2%) in the same year. The food-processing sector has a positive export-import commercial balance, with a coverage rate that increased in 23 points in last year. The main strategy
of the Navarre food-processing sector is diversification through products innovation.

- The Health Service sector is highly regarded in Navarre thanks to a first quality level and innovative techniques of its regional public-private hospital and university infrastructure, highly reputed within Spain and abroad. This Health sector triggered a fast growing biotechnology sector in the last years. The regional government together with private corporate investors and the private university of Navarre supported a flag-ship project: a private research centre (CIMA, Centro de Investigación Médica Aplicada – Medical Applied Research Centre) which has served as a base of the biotechnology emerging sector. CIMA centre has more than 350 researchers (most of them coming from all parts of the world) and a budget of euro 200 million (in ten years) for applied medical research, with a current portfolio of developed and owned PCT patents which includes more than 30 products, both for therapeutic and diagnosis, many of them already licensed-out to large pharmaceutical multinational companies. Due to this favourable environment, several biotech start-ups and expanding biotech firms are located in Navarre.

1.3 Identified challenges

The GDP growth per capita in Navarre is mainly due to an increase in working intensity (number of hours per employee) and occupational and activity rate. Even so, these growths have not been accompanied by a substantial improvement on productivity rates. In order to keep up the rate of the regional economic growth it is suggested a modernization of the most traditional productive branches in which it is still based a good share of the region’s economic growth obtained until the date. It is needed a reorientation of the regional productive factors towards more technology-intensive sectors. Navarre has to move towards a change of its productive model and towards increased collaboration practices of regional innovation stakeholders at different levels (state, European and global).

In order to improve the competitiveness of Navarre enterprises, the following specific challenges have been identified:

- Challenge 1: Intensify the transfer of R&D results towards enterprises.

Especially in what refers to technological transfer between Universities and enterprises, as well as to technological cooperation among firms. It is known that the R&D and innovation indicators in Navarre are generally above the Spanish average. Nonetheless, the Navarre values are below other leader countries surrounding. Intensified flows of knowledge transfer will contribute to improving these indicators so that they are closer to the leading regions.

Exceptionally the most capable R&D enterprises will not need to cooperate with others to carry out their activities. However, a relevant share of Navarre enterprises which lack knowledge and the necessary abilities to do research would have to cooperate with RTDs centres and with other companies in order to progress. On the other hand, if an enterprise has to exploit external knowledge received, it previously needs to possess individual capacity for the development of the knowledge-based activity.

Concisely, cooperation could allow many Navarre agents to perform ambitious projects through the accumulation of a higher resources volume and sharing risks. Secondly, cooperation could facilitate synergies generation between basic R&D (from universities and RTD
centres) and applied R&D (mainly originated and developed in enterprises) centres. Finally, cooperation could result in externalization of certain technological activities providing the companies the possibility to have specialised physical and human capital without the elevated fixed costs.

• **Challenge 2: Attract the best talent.**

In addition to the fact that Spain and Navarre must continue making great efforts to get closer to RTD investment percentages of most developed countries, one of the main problems is the inability of a large part of the regional business activities to assimilate and benefit from the results generated from external research activities. The situation is worse if the regional innovation system has difficulties identifying the action lines which could contribute to a substantial improvement in productivity and competitiveness on these firms.

The capacity for attracting people with higher educational levels and including them in the regional innovation system could be improved. The scarce economic reward of scientific and technological activities in Spain makes necessary to intensify the regional incentives (tangibles and intangibles) in order to attract not only more but the best talented people to enterprises and RTD centres.

Therefore, technological improvements and higher R&D investments will be more efficient if better incentives are designed for talent attraction, so that institutions are better prepared for obtaining valuable actuations in terms of patent applications and for improving the competitive capability of firms. In this context, Navarra may take advantage of the privileged position (compared with the rest of Spain) in terms of population with tertiary education and exportations of high-medium technology products, as these may be factors for attracting talent.

• **Challenge 3: Increase the regional level of employment in firms in the knowledge intensive services sector**

One of the indicators in which Navarre is low positioned is the level of employees within the knowledge intensive services sector.

This relative low degree of employment in knowledge intensive services, combined with a lower R&D&I investment of the Navarre’s enterprises with respect to the most innovative European regions and the poor interaction among the public research stakeholders and the industry fabric, leads to the following situation: Navarre shows lower patent registration, it gets to incorporate a limited number of technological and non-technological innovations; it very rarely exports knowledge intensive services, and the introduced innovations have less effect on labour costs reduction and on material and energy savings compared with equivalent European regions (in terms of productivity and per capita income). So higher employment in knowledge intensive services would certainly improve the region’s ability to convert research and technologic effort into innovation.
2. Innovation Policy Governance

2.1 Degree of institutional autonomy

The Constitutional Law for Reintegration and Improvement of the Regional Government of Navarre (1982) expressly states the ability of Navarra to maintain, establish and control its own fiscal system and tax collection autonomy provided that it is in keeping with international agreements and national taxation policy.

As a consequence, the Government of Navarre has budgetary policy autonomy which is independent from the Spanish Government and allows Navarre to dispose of its own Treasury and Innovation Departments or regional ministries.

The First Technological Plan of Navarre was published in 2000 and in subsequent regional innovation plans. The regional innovation policy is in parallel allocated with substantial budgets coming from own regional public funds for financing the different R&D and innovation aid programmes designed.

This regionally funded budget is regularly complemented with additional funds coming from the Central Government and, to a lesser extent, from ERDF funds (European Regional Development Fund) of the European Commission.

The Innovation Department of the Government of Navarre has total independence in the design and execution of innovation support measures provided that it respects the Spanish General Act for Subventions and the thresholds of aid’s maximum intensity established by the Community Framework for State aid on R&D and innovation.

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

The main innovation policy trends of the Navarre Region are promoted and implemented by the Enterprise and Innovation Directorate, from the Regional Ministry of Innovation, Enterprise and Labour of the Regional Government of Navarra.

The first Regional Regulatory Framework to promote technological innovation was adopted in 1982 by the regional Parliament of Navarre. It has been progressively updated and expanded during the past two decades by the Regional Government, and has become the cornerstone of Regional Innovation Policy in Navarre.

In 1999, the regional government, through its Directorate of Innovation and Technology, defined and approved the first multi-annual Regional Technological Plan of Navarre for the 2000-2003 period with a regional public budget of euro 120 million. Before ending it, a second multi-annual Regional Technological Plan was designed and adopted for the 2004-2007 period, with a regional public budget of euro 140.9 million. The third Regional Technological Plan which is currently in force for the period 2008-2011 entails a regional public budget of euro 228.9 million.

A fluid communication exists between the Innovation Department of the Government of Navarre and other regional, state and European committees. The key technical staff from the Innovation Department of the regional government has been maintained and politically supported during many years, even decades, by the Government in place at any given time. This stability or continuity of staff has allowed the consolidation of a networking and coordination culture with other departments at a regional, national and inter-
regional/European levels. In particular it has been possible to advance, generate and consolidate new networks with the following organisations:

At a national level, CDTI (Centre for the Development of Industrial Technology) is the Spanish Innovation Agency that supports R&D&I business projects and international exploitation of technologies developed by companies. It evaluates and finances technological developments and innovation 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 enterprises. There is close coordination and joint management between the Navarre Innovation Department and CDTI for co-financing R&D&I business projects.

On the other hand, national legislation regulates the relationships between the Innovation Department of the Government of Navarra and Spanish Ministries through ad-hoc working groups that meet regularly to exchange strategies and coordinate policies.

At a European level, there is a representative in Brussels belonging to ANAIN (Navarre Public Agency of Innovation and Technology) who is in charge of monitoring the EU R&D and innovation policies, channelling relevant information to targeted Navarre innovation stakeholders, and representing the regional innovation department before the EU institutions. Moreover, the Innovation Department of the Government of Navarre not only participates in ERANETS (for instance MANUNET and LEAD ERA), but is also a direct beneficiary in other European funded projects (mainly through Interreg and DG Enterprise initiatives) which allow close cooperation with other European regions and administrations for sharing good practices and implementing innovation polices.

At regional level, other relevant regional departments in the innovation field are the Education Department and the Rural Development and Environment Department. The Innovation Department regularly establishes coordinated support innovation policies with these departments.

Coordination is also extended to intermediate agents implicated with the implementation of the regional innovation policies, such as ANAIN, CEIN (European Centre of Enterprise and Innovation of Navarre) and a network of public and private research and technological centres. The Innovation Department has a direct presence in the boards of direction of these intermediate agents, and therefore it directly monitors and controls the activities performed by these agents.

As said above, ANAIN is the public regional innovation agency created in 1999 to increase innovation in Navarra. It contributes to the economic and social development of the Autonomous Community. It is actively involved in initiatives aiming to increase the collaboration among Science-Technology-Enterprise System agents in Navarre and their participation in international R&D&I cooperation programmes. ANAIN manages the creation of sectoral and thematic panels as well as clusters in coordination with CEIN- establishing the appropriate channels to raise awareness and disseminate the culture of innovation and the incorporation of new technologies among Science-Technology-Enterprise agents.

CEIN is a regional publicly owned Business and Innovation Centre (member of the European Business and Innovation Centres Network) that helps SMEs and entrepreneurs in Navarra who seeks to consolidate and diversify the region’s economic and industrial environment. Its aim is to identify, promote and
develop new and innovative business projects and encourage innovation in Navarre companies.

ANAIN also manages the Innovation Park of Navarre, which is a highly qualified scientific and technological environment for the development of technology-based enterprises and research institutions for promoting R&D&I activities and projects with the objective of increasing firms’ competitiveness and economic growth.

ANAIN is also responsible for managing the RETECNA network (Red Tecnológica de Centros de Navarra – Technology Network of Research Centres of Navarre). This regional network originated in 2006 to develop links between technological agents in order to promote synergies and complementarities, to develop joint collaborative projects and to interact with other networks and stakeholders from the European Science-Technology-Enterprises system. RETECNA is conducive to knowledge circulation and provides a basis for trust building towards collaboration and open innovation. Nowadays, RETECNA is constituted by the following ten public and private RTD centres:

- CENER: National Reference Centre for Renewable Energies ([www.cener.com](http://www.cener.com)). Focusing on solar energy, wind energy, biomass energy, bioclimatic architecture, thermal solar energy.
- CITEAN: Navarra Transport and Automotive Technological Innovation Centre ([www.citean.com](http://www.citean.com)): Focus on design engineering and virtual simulation, test laboratories, and equipment for RTDI test tracks.
- FIDENA Principa Tech ([www.fidena.es](http://www.fidena.es)): Joint Venture between Navarra Government (SODENA) and Principia Tech, an American high-tech international spin-off from MIT. Nanotechnology centre focusing on related research areas and on supporting nanotechnology start ups and spin-offs.
- IDAB. Institute of Agrobiotechnology ([www.agrobiotecnologia.es](http://www.agrobiotecnologia.es)): Centre of the Universidad Pública de Navarra, the Higher Council for Scientific Research, and the Regional Government of Navarra. Focusing on metabolism of carbohydrates and energy crops, molecular mechanisms involved in the production of bacterial biofilms, plant biofactories (drugs and vaccinations), and animal health.
- CIMA. Centre for Applied Medical Research ([www.cima.es](http://www.cima.es)): Linked to University of Navarra, focuses on cardiovascular science, genic therapy, and hepathology.
- CNTA. National Centre for Food Safety and Technology ([www.cnta.es](http://www.cnta.es)).
- Instituto Lactológico de Lekunberri. Dairy Technology Centre. ([www.illekunberri.com](http://www.illekunberri.com)).
- Fundación L’Urederra ([www.lurederra.es](http://www.lurederra.es)): Focusing on Surfaces, Materials and Nanotechnologies.

Regarding financial and equity capital support for the creation of new and innovative enterprises, Navarre has two regional public owned venture capital firms: SODENA and START UP CAPITAL.
SODENA, a public owned venture capital firm, was constituted in 1984 and nowadays is the main instrument of the Government of Navarre for the business development of the region. SODENA carries out its activities as a public limited company, with a majority direct shareholding of 65.42% by the Government of Navarre. SODENA focuses its activities in equity investment in innovative business projects aimed at the creation of new companies, the expansion of existing ones, the internationalisation of business or the attraction of foreign business investments for Navarre. SODENA always holds a minority equity share and has a presence in the boards of direction of the invested companies, thus participating actively and prominently in business projects in different phases and contributing to the balanced and sustainable development of Navarre.

START UP CAPITAL is a public venture capital society which only invests in early stage phases of innovative business projects. It assists recently created enterprises in their development plans, infrastructures, and contracts and on the strategic monitoring and networking required for their consolidation.

2.3 Availability and use of policy intelligence tools
The outcome and impact of aids granted have been regularly measured through traditional macroeconomic indicators and with the elaboration of qualitative and quantitative surveys to aid beneficiaries. It is extremely complex to determine the cause-effect relationships that exist between the outcomes of the implemented aids and the macroeconomic indicators in the region.

The Innovation Department of the Government of Navarre is participating in various cooperation projects with other European regions aiming at improving mechanisms for impact assessment of regional innovation policies. This is in order to measure the cause-effect relationship, and in order to improve the design of more efficient innovation support measures and to consolidate an innovation assessment culture.

On a less political but more operational level, other intermediate innovation support departments in Navarre, like CEIN or ANAIN, organise their activities through specific annual projects which set the particular objectives and the associated working plans. Once the annual period is finished, evaluations and valorisations of achievements are made in order to plan and set out the actuations of the following period.

On the other hand, the main regional innovation policies have been based in the successive Navarra Technological Plans which cover programming periods of four years. For designing those Regional Technological Plans, the Innovation Department has counted on innovation consultants for studying and sizing up the innovation needs of the industrial and socioeconomic actors of the region in order to orientate future innovation support measures and cover those needs. In this context, each innovation support measure defined includes a set of annual indicators for monitoring the outcomes of its implementation.
The above figure reflects the strengths of Navarre with regard to its budgetary autonomy and tax collecting competence independent from the Spanish central government. This allows Navarre to define its own innovation policy and to finance it with its own regionally collected public resources. With regard to policy factors, it also reflects the need for further regional effort in the design of policies/measures supporting the creation and growth of innovative enterprises and cooperation among science-technology-enterprise stakeholders. Finally, it shows the predominance of business R&D expenditure over university R&D expenditure in the region, and the high percentage of population with tertiary education.

2.4 Key challenges and opportunities

In May 2008, the Government of Navarre launched the strategic socioeconomic development plan MODERNA (Modelo de Desarrollo de Navarra - Navarre Economic Development Model) to undertake a transformation of the socioeconomic infrastructure of Navarre. While preserving the relative weight of industry in Navarre GDP and employment, MODERNA intends to improve Navarra’s relative position in Europe and to assure sustainable wealth generation over time.

MODERNA is a joint initiative of the Government of Navarre and the main political, economic and social stakeholders of Navarre. It is the main supporter of all local Universities and an indispensable engine to generate a new regional socioeconomic model based on knowledge and on people.

The MODERNA programme is based on a new strategic reflection process involving most relevant representatives of Navarra regional innovation system; it is focused on the capabilities of Navarre and centred on people. It provides a bottom-up channel for defining a strategic vision of Navarre in the future (2030 horizon) in order to successfully face the challenges set out by the new framework conditions of the Global Economy.

The MODERNA² Plan entails:

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² For more information about MODERNA go to http://www.modernanavarra.com/en/what-is-moderna/index.aspx
Strategic objectives for the regional socioeconomic development in order to define the long term vision of Navarre situation (with a 2030 horizon):

- To position Navarra amongst the 20 leading European regions in GDP per capita and with a fair distribution of wealth
- To position Navarra amongst the 10 leading European regions in the Human Development Index (HDI).
- To position Navarra amongst the 20 leading European regions in sustainability.

The Innovative economic sectors in which Navarre has committed itself.

Changes on cross-sector factors needed for improving the productive environment.

Action plans to reach the objectives.

A monitoring and evaluation system.

In parallel, in 2011 there will be a reorganisation of the public enterprises of the Government of Navarre. As a result ANAIN and CEIN will merge. Better coordination of the support tasks and services that the two separate agents provided to the Innovation Department of the Government of Navarre is expected as a result of this merger. Another expected benefit from the merger is to streamline the response process to demands generated by the enterprises and RTD centres.

Finally, an unsolved challenge related to governance refers to the understaffed situation of the Innovation Department of the regional government. In the last few years, there has been an increase in the number of applications submitted to the Innovation Department and related to R&D Projects and innovation support measures. However, there has not been a consequent increase in the number of civil servants responsible for the management of those R&D Projects applications and innovation support measures applications.
3. Innovation Policy Instruments and Orientations

3.1 The regional innovation policy mix

In 1982, a regulatory framework was established by the regional government to support technological innovation and it has been in force during two decades (only modified by related legislative requirements at national and European level). Since 2000, R&D and innovation support policies of Navarre have been periodically regulated by the successive regional Technological Plans.

The main objective of the First Technological Plan (for the period 2000-2003) was to boost the R&D activity of the regional enterprises as well as to extend this R&D activity to inexperienced enterprises, expanding progressively the business innovation culture amongst regional businesses. In this period the Government of Navarre initiated its activities in the domain of promoting Scientific and Technological Parks by creating the “City of Innovation”. The Government of Navarre reserved a large space where many national headquarters of technology intensive companies resided. The “City of Innovation” is to be an industrial policy tool of the regional government to foster the socio-economic development of Navarre.

The second and third Technological Plans of Navarre (in force during 2004-2007 and 2008-2011) follow the main goals of the previous plan for stimulating and consolidating an innovation culture among regional agents. The second Technological Plan stimulated cooperation between the regional agents of the Science-Technology-Enterprise system. The Third Plan adds an internationalization dimension to such R&D and innovation cooperation support policy.

Accordingly, the evolution of the three consecutive regional Technology Plans of Navarre makes clear that the main emphasis of regional support measures is put on direct support to business R&D projects and business innovation projects (including both technological and organisational innovations) and to R&D cooperation projects reinforcing science-industry linkages (either at regional, national or international level); this is certainly reflected in the relevant share that these measure have in the overall budget available for implementing the regional technology plans. Other support measures with less budget resources allocated are focused on consolidating innovative start-ups and boosting the recruitment of skilled personnel in enterprises. Yet these less intensively funded measures should be allocated more financial resources in order to be consistent with the regional innovation political objectives of attracting talent and increasing the presence of knowledge intensive services.
Table 3-1 Existing regional innovation support measures

<table>
<thead>
<tr>
<th>Title</th>
<th>Duration</th>
<th>Policy priorities</th>
<th>Budget</th>
<th>Organisation responsible</th>
<th>More information</th>
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| Identification and development of European and international R&D proposals | 2008-2011         | 2.2.3. K&D cooperation  
4.2.3. Support to technology transfer between firms  
4.1.2. Support to innovation in services  
4.2.2. Support to organisational innovation including e-business | €3,400,000    | Department of Innovation, Enterprise and Employment of the Government of Navarra                                                                  | http://www.navarra.es                        |
| Stimulation and support for R&D business projects                     | 2008-2011         | 2.3.1. Direct support of business R&D (grants and loans)  
2.3.2. Indirect support to business R&D (tax incentives and guarantees)  
4.1.1. Support to sectoral innovation in manufacturing  
5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns) | €98,840,000   | Department of Innovation, Enterprise and Employment of the Government of Navarra                                                                  | http://www.navarra.es/home_es/Servicios/ficha/2896/Ayudas-para-proyectos-de-investigacion-desarrollo-e-innovacion-(I-D-i) |
| Identification and promotion of technological cooperation in R&D      | 2008-2011         | 2.2.3. R&D cooperation  
2.2.1. TT Support infrastructure  
5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns)  
4.1.2. Support to innovation in services | €18,895,000    | Innovation and Technology Agency of Navarre  
| Support for new innovative technology-based companies                | 2008-2011         | 4.3.1. Support to innovative start ups including Gazelles  
4.3.2. Support risk capital  
4.2.2. Support to organisational innovation including e-business  
2.3.1. Direct support of business R&D (grants and loans) | €8,540,000     | CEIN  
| Contracting and mobility of technologists and doctors for R&D activities | 2008-2011         | 3.2.3. Recruitment of skilled personnel in enterprises  
3.2.1. Job training (LLL) of researchers and other personnel involved in innovation  
3.2.3. Mobility of researchers (e.g. brain-gain, transferability of rights)  
3.2.2. Career development (e.g. long-term contracts for university researchers) | €3,886,000     | Innovation and Technology Agency of Navarre  
| Competitiveness support programme                                     | 2008-2011         | 4.2.2. Support to organisational innovation including e-business  
4.2.1. Support to innovation management and advisory services  
3.3.1. Job training (LLL) of researchers and other personnel involved in innovation  
2.2.2. Knowledge Transfer | €16,200,000      | Department of Innovation, Enterprise and Employment of the Government of Navarra                                                   | http://www.navarra.es/home_es/Servicios/ficha/2787/Ayudas-para-la-mejora-de-la-competitividad |
The three regional innovation policy measures introduced below can be considered as the more relevant ones for the Navarre business sector:

1. **Stimulation and support for R&D business projects.** The main beneficiaries of this measure are enterprises, either individually or in cooperation. Universities and RTD centres may also benefit if they cooperate within the R&D business projects. In the first years of implementation of this measure, the majority of funded R&D projects were carried out by firms with any external cooperation. The technological results generated by enterprises through these projects and their derived new products development, have certainly contributed to position Navarre’s economy so that it is above the national average. Due to an increased awareness and enlarged knowledge base of participating enterprises, the collaboration with Universities and RTD centres is more common (either being subcontracted by the enterprise or participating as equal partners in projects consortia).

2. **Competitiveness support programme.** This measure allows firms to subcontract to or acquire knowledge from external consultants in fields related to innovation management, organisational innovation, qualifying skilled personnel, design, etc. as a way to increase the company’s competitiveness. Thanks to this external knowledge the enterprise can progress faster and address improvements that previously were not taken into account. In the initial years of the measure the highest number of applications was related to product and process design together with obtaining quality certifications or standards. Afterwards, these support measures were restricted to SMEs as the sole beneficiaries, while the applications and main interest of big enterprises moved towards requesting support for strategic or innovation planning, technology watch services, business economic and technological intelligence services, etc.

3. **Identification and preparation of European and international R&D proposals.** This policy measure is not as renowned as the previous two in the business and technological sector of Navarre. Nevertheless, the results obtained by the enterprises which had participated in it were particularly positive. As a consequence of the support received, these enterprises have discovered multiple European Commission programmes. They were able to: identify their potential to participate in different support lines, network with technical companies from other countries, and acquire new working methodologies and technologies previously unknown to the firms.

There are two other regional policy measures which have supplemented the above mentioned measures and have facilitated the transfer of knowledge and technology from research centres to enterprises. These are the measures for hiring and mobility of technologists and doctors for R&D activities and the training grants or scholarships. Beneficiaries of both measures can be either companies or RTD centres. As a consequence of these two measures, the enterprises have reduced the risk of recruiting skilled technical personnel for their staff.

With reference to measures supporting R&D cooperation projects between companies, RTD centres and firms from other countries, it is worth to mentioning the involvement of the Government of Navarre in some ERANET (European Research Area Networks) programmes. The one that is most well known among Navarre companies is the MANUNET network through which the regional government supports international R&D cooperation projects in the field of new manufacturing technologies. Thanks to the participation in these ERANET programmes, the Navarre regional innovation stakeholders have further increased networking with firms and RTD centres from other countries, establishing strong links which facilitate subsequent participation in different EU framework programmes.
3.2 Appraisal of regional innovation policies

As stated earlier, the evaluation of the effectiveness of regional innovation policies is done by surveys addressed to beneficiaries who provide both quantitative and qualitative assessment of the implemented measures. However, it becomes rather complex to establish a direct cause-effect relationship between an innovation policy measure and the evolution of the economic indicators of the beneficiaries. Yet, the region’s economic indicators evolution has been very positive and have incrementally increased in the last few years. There has been growth as regards to GDP per capita and General Expenditure in R&D has been aligned along the last decade in Navarre.

The GDP per capita in Navarre increased 39.4% in the period 2000-2008. In particular, the regional Gross Domestic Product (GDP) per capita in 2008 was €32,900, above the average national value of €25,900 and the EU27 average value of €25,100. Navarre’s GDP per capita is higher than the average one for Spain and the EU27. In fact Navarre is placed as the 38th in GDP per capita amongst the European regions.

On the other hand the regional expenditure on R&D for 2009, 2.13% of GDP, is slightly higher than the EU27’s rate (2.01%), and considerably higher than the Spanish one (1.38%). Of the last 6 years, the regional progression on this indicator has been remarkable, as its value has almost doubled, showing a much more dynamic growth than the Spanish and EU27’s values. Navarre is first among Spanish regions in terms of GERD/GDP ratio. This progression has been supported by the three successive regional Innovation and Technological Plans programmed implemented since the year 2000. The threat at this point is that while the European regions have stable values regarding R&D, in Navarre the actual economic situation could reduce or even be paralysed.

A few factors that have had a positive impact on the results of the Navarre innovation policy follow. The first factor is the fact that the successive regional Technological Plans have always been designed using a bottom-up approach which involved the potential beneficiaries of the policies discussing SWOT analyses about the regional innovation system and the potential advantages/drawbacks of possible new regional innovation support measures by means of numerous specific sector and cross-sector workshops. This bottom-up approach has allowed successive regional Technological Plans to build upon real technology and innovation needs of Navarre agents and in line with innovation and technology trends detected at an international level.

This bottom-up approach was endorsed by the increase in the number of R&D and innovation related aid applications from enterprises and RTD centres of Navarre, not only before regional innovation authorities but also before the state innovation authorities (mainly, before the Spanish national Innovation Agency CDTI and the Spanish Ministry of Science and Innovation). The increase of applications has also experienced a change, initially only individual R&D projects were carried out, but in the last few years, a significant number of cooperation projects have been launched.

A second factor is the continuity of Navarre innovation policies (i.e. through the successive regional technology plans since year 2000). This has had a positive impact in promoting an innovation culture, not only among the regional industry, but also among public and private RTD centres, universities and the regional administration. This growing innovation culture has propitiated a positive reaction and involvement of Navarre innovation agents in the regional innovation policy measures.

If difficulties in the macroeconomic environment persist on a medium-long term period, the principal barrier that the regional innovation stakeholders may face is a difficulty 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 Navarre innovation system; the forthcoming fourth regional Technological Plan of Navarre for the period 2012-2015
will reinforce the importance of innovation policy measures to boost cooperative RTD and innovation projects and initiatives, not only among the regional innovation stakeholders themselves or just within the boundaries of the Navarre and/or Spanish innovation systems, but also in an international and global context with an open innovation approach. The fourth regional technological plan is also envisaging specific measures to reinforce the presence of knowledge intensive services and their demand by Navarre firms in fields related to strategic intelligence, access to scientific and technological knowledge, and improved use of information and communication technologies. The challenge of attracting talent is supported by measures aiming at facilitating researchers’ mobility schemes and recruitment of skilled and specialised personnel by companies.

3.3 Good practice case

One of the examples of good practice has been the creation of a steady regulatory framework to promote and co-finance the business R&D activities in the region, combined with investment support measures that co-finance business productive investments by the Innovation Department of the Government of Navarre.

A first regulatory framework to promote technological innovation among firms was early adopted in 1982 by the regional Parliament of Navarre. At that time, there was not in Navarre (and probably neither in any other Spanish regions) any previous measure supporting or co-financing business R&D and innovation initiatives, and it was inspired in national innovation policy measures implemented in other European countries. This first regulatory framework was progressively updated by the regional government during the last two decades, and is the cornerstone of the regional innovation policy in Navarre.

Yet this regional scheme for supporting business R&D and innovation activities grew substantially when the first regional Technology Plan (2000-2003) was implemented, and it has been further expanded by the Innovation Department of Navarre along the successive regional Technology Plans until nowadays.

This scheme supports business R&D and innovation initiatives, either individually undertaken or in cooperation with RTD centres, and it is one of the most highly valued programmes among both enterprises and RTD centres. In six years, the number of regionally-supported business research and innovation activities has multiplied by four, moving from some 60 business R&D projects annually supported in year 2000 by the Innovation Department to more than 200 in year 2006; this trend has been consolidated in the last few years.

The innovative aspect that contributed to the expansion of the scheme at the time of the first regional technology plan (in year 2000) was the fact that this measure was combined with a proactive approach of the Innovation Department. This department of the regional government, with the assistance of external innovation consultants, put in place a system for conducting innovation audits among hundreds of Navarre firms in order to assess their innovation capabilities and to identify their potential product, process or organisational innovations that were subsequently defined, planned and budgeted around specific projects submitted for funding under the regional scheme supporting business R&D and innovation initiatives.

These external innovation audits targeted firms without any previous relationship with the Navarre Innovation Department. Hundreds of Navarre business firms have conducted such innovation audit exercises during the last decade. This factor was decisive for the consolidation and growing of a business innovation culture in the Navarre business infrastructure and it lead to the acceptance of the business R&D support measure of the Innovation Department. A decade later, the regional system for external innovation audits of firms is still operational. There is always room for enlarging the number of innovative firms in Navarre and expanding the business innovation culture, even though Navarre is ranked as the first Spanish region in terms of R&D expenditure over GDP (GERD/GDP).
This regional measure supporting business R&D and innovation projects has been implemented from the very beginning in extremely close coordination with the Spanish national innovation agency CDTI. Thus, many Navarre business R&D and innovation projects that were regionally financed were also submitted to CDTI in order to co-finance these projects while respecting the thresholds set by the Community Framework on R&D State aid. Being CDTI the single organisation of the Spanish central government which centralises all the national public funding to business R&D initiatives, the coordination mechanisms set up between both public administrations (the Innovation Department of Navarre Government and CDTI) has run smoothly along the last decade, with continuous exchange of information and even joint decision-making mechanisms for the approval or rejection of business applications.

Summarising, this regulatory framework for supporting business R&D and innovation activities has been successfully used by the successive Technological Plans of Navarre, due to the following features:

- Providing a rapid response to the Navarre’s industry and RTD centres R&D financing needs.
- Maintaining a fluid relationship with CDTI, by a joint and continuous evaluation and co-financing of the selected RTD projects.
- Allocating a steady budget due to the tax and budget autonomy of Navarre region.
- Counting with the consensus and support of the main political parties of the region.
- Integrating the design of the programme aids the businesses and research organisations needs, as well as collaboration between both parties.

Since 2001, this business R&D and innovation support scheme has been supplemented by the fiscal incentives associated to the realization of business R&D activities which were set up thanks to coordination and joint decision-making procedures between the Innovation Department (responsible for qualifying those business activities that can benefit from R&D and innovation tax incentives purposes) and the Treasury Department (in charge of the tax collection).

3.4 Portfolio of innovation support measures

Navarre has always been autonomous in terms of tax collection and budget control. This has allowed the region to have the right to decide its own allocation of innovation policy programmes. This has led to implementing innovation support measures that are adapted to the local needs of Navarre innovation instead of designing first the innovation support scheme and afterwards searching for funding outside the region budget—which is the usual way for proceeding of most Spanish regions that do not have tax collection autonomy. Therefore, the main source of public resources for funding Navarre innovation policies is the regions own Treasury Department. An approximated estimation of the origin of distribution for the funds dedicated to finance the innovation programmes is: 50% from Navarre, 40% from State funds and 10% from ERDF funds (European Regional Development Fund).

Yet, the Navarre companies have an enormous presence in CDTI financed projects that is, by far, above the weight of Navarre industry contribution to Spanish industry GDP. CDTI is the Spanish national innovation agency depending from the Spanish Ministry of Science and Innovation, and it is the foremost organisation of the Spanish government that centralises all the national public funding for business RTD and innovation initiatives. Around eight per cent of overall business RTD projects funded by CDTI during the period 2006-2008 correspond to Navarre firms while Navarra RTD expenditure represents only 2.4% of the Spanish overall RTD expenditure; that is to say that Navarre firms are particularly active in RTD and innovation activities since they are obtaining returns from national RTD funds that are over the weight or
relevance of this region in the Spanish RTD landscape. This is a consequence of the innovation culture among the Navarre firms and of the long-established financing collaboration agreement which has been set between CDTI and the Government of Navarre.

Regarding European policies, the Navarre regional return from the 7th Community Framework Programme during the period 2007-2011 (March) arises to €21.37 million, 60% of which has been granted to private companies. In percentage this return represents 1.87% of the total Spanish return from the 7th Framework Programme for the same period, which is lower than the regional contribution to the national overall RTD expenditure (2.4%).

Taking into consideration the relative weight of Navarra’s population on EU27 (0.12%), and the overall 7th Framework Programme budget for the 2007-2013 period (€50,521 million), the estimated regional return for the period should be above €60 million. Thus, some kind of regional underperformance might be expected by the programme’s end.

Even so the expected return from FP7 will probably be higher than the €42 million return coming from the ERDF funds (European Regional Development Funds) to support regional business innovation activities, since in the present programme period of the European Structural Funds Navarre receives fewer resources than in previous periods according to its qualification as ‘competitive’ region.

A positive experience funded under the previous programme period of Structural Funds through the Interreg regional scheme for inter-regional innovative actions was the cooperation programme called ‘Euroinnova Navarre’. With a budget of €4.8 million (€1,733.5 million of ERDF contribution), Euroinnova Navarra promoted sector and regional cooperation and the integration of a European network of agents for the regional innovation system - universities, technological agents and companies.

‘Euroinnova Navarre’ was a 2-year programme that ran until December 2007. The programme aimed to contribute to the European objective of achieving 3% of R&D expenditure over GDP. A new working area for the design, experiment and take up of innovative measures was created. It simultaneously promoted the regional and sectoral integration of Navarre innovation stakeholders (regional administration, Knowledge Centres and enterprises) and their European networking with agents belonging to other regional innovation system. This contributed sustainable development, as well as the improvement of quality of life of all the Navarre’s society.

The ‘Euroinnova Navarre’ programme focused on three core and innovative actions:

1. Excellence poles. These poles were cooperation platforms where a methodology for identifying and executing large collaborative R&D projects in specific sectors or clusters (biotechnology, nanotechnology and renewable energies) was designed, tested and successfully implemented.

2. “Innova-tic”. This action aimed at boosting and developing the Navarre ICT (Information and Communication Technologies) sector as an accelerator for technological change and regional economy growth.

3. Innovanetworks. This were cooperation networks set up with innovation policy makers from other European regions in order to advance towards the integration of the Navarre regional innovation system into the European Research Area (ERA)

These experiences initiated different activities where entities with potential for taking advantage of the synergies and collaborations were associated. Currently, this has positively materialized- creating new technological platforms in which group enterprises and research agents to carry out collaborative projects.
3.5 Towards smart specialisation policies

The ‘Euroinnova Navarre’ initiative can be considered the first relevant step made by the Navarre innovation policy makers for fostering a systemised debate among the regional innovation stakeholders to pay higher attention to open innovation approaches in areas in which Navarre has a relative strong competitive position and including the international dimension of such open innovation system.

RTDs subcontracting, networks and collaboration habits were created through the different research agents at regional, state and European level around specific technology areas (renewable energies, biotechnology oriented to food-processing, environmental and health applications, etc.). Nevertheless, there is room for Navarre to boost smart specialisation policies which have to counteract certain reticence to collaboration between enterprises, especially in case of being part of the same sector.

Therefore, in order to facilitate a closer relationship between Navarre, enterprises and scientific, technologic and support agents from the private or public sector, have convened several initiatives like working groups or sectoral boards set up by the Innovation Department as a way to consolidate clusters. They have also stimulated smart specialisation policies around specific technology areas where Navarre can compete at an international scale. In the last years the regional government has boosted the creation of a few regional clusters that are currently being consolidated:

- Food-processing cluster. The food-processing cluster, originated in 2008, covers companies along the whole value chain from agriculture producers to food-processing companies as well as specialised RTD centres. The food-processing industry is one of the leading sectors of Navarre industrial fabric due to: its degree of innovation, its diversified and wide range of products offered, and its reputation at a national level. The cluster aims to stimulate and promote the competitiveness of the Navarre food-processing sector, by facilitating cooperative and open innovation processes among the cluster members. For that purpose, practical working tools are used such as, for instance, a food related technology watch website set by the regional innovation agency ANAIN that provides online information about technology offers and needs issued from regional research organisations and companies working in the food-processing sector. ANAIN also organises regular thematic meetings or workshops for fostering cooperation projects within the cluster, and plans conferences around innovation aspects and topics of interest for the food-processing sector.

- Logistic cluster is an initiative boosted and started two years ago by the Public Works, Transport and Communications Department of the Government of Navarre. It gathers different participants such as enterprises, transport associations and other related entities. Several logistic companies have expanded in the region and carry out their activities at international scale around the automobile sector and the auxiliary automobile sector (Volkswagen has a production plant in Navarre since the year 1984). Navarre is also in a geographically privileged position as a gateway from Spain to the rest of continental Europe. The regional government has set up a management unit for this cluster which is in charge of stimulating and coordinating the cluster activities. This associative structure improves the competitiveness of these agents through the identification of synergies among its members and the definition of joint strategic actions and projects related to RTD, infrastructures, training, environmental and safety aspects, etc.

- ICT cluster. Unlike the previous two clusters, the ICT cluster of Navarra has born from a bottom-up initiative of Navarre ICT companies that decided to set an associative structure, ATANA (Association of ICT companies of Navarre), rather than from a top-down approach from the regional government. However, the regional government provided some support to the cluster activities and, in particular, the regional government is designing a future thematic ICT technological park located close to the public university of Navarre (that has an
ICT faculty) in order to propitiate a critical mass of ICT knowledge, foster synergies and reinforce cooperation among ICT companies located in this park. Ultimately, the main objective of this cluster is to increase the Navarre ICT sector competitiveness by reinforcing cross-sector or multidisciplinary cooperation and innovation projects with other leading and more consolidated regional sectors like renewable energy, food-processing, capital equipment, etc. The Innovation Department and the regional innovation agency ANAIN help to achieve these objectives by mediating and looking for synergies with cooperation projects led by other regional clusters.

- Automotive cluster. CEIN (the public owned business and innovation centre depending on the regional Innovation Department) is the entity which facilitates this cluster by stimulating and coordinating the principles of the cluster strategic programmes in areas like RTD and innovation projects, sustainable development and energy efficiency, sector diversification potential, etc. They also channel the identified cluster projects towards the appropriate public funds or public support measures. The cluster is nowadays implementing the strategic projects which were included in the Strategic Plan of the Automotive Sector of Navarre (2007).

- Navarre’s Electric Vehicle (VEN) cluster. This cluster was created recently (2009-2010). ANAIN and CEIN are involved in boosting its activities. It integrates various large enterprises from different sectors (mainly from the power generation sector and the automobile sectors, both with a significant presence in Navarre), which are interested in the technological development of the electric vehicle.

- Navarre Solar Energy is also a recent initiative, created in 2010 and promoted by 12 enterprises of the region which represent the three solar energy subsectors (photovoltaic, thermal and thermoelectric). A strategy plan for the Navarre solar energy sector has been developed, covering aspects related to cooperative RTD and innovation projects, internalisation of activities, improving personnel skills, etc. Yet the support from the regional government seems less proactive in comparison to support provided to other clusters.

In summary, the smart specialisation policies of the regional government of Navarra are focused on the stimulation and coordination of several clusters created a few years ago. This strategy will be retained in the forthcoming fourth Navarre Technology Plan for the period 2012-2015 in which the Innovation Department foresees several collaboration framework agreements with each of these regional clusters (with the corresponding budget allocations). They are to foster specific technology watch services, mobility of skilled personnel, training, IPR protection, RTD activities, networking and open innovation approaches at regional, national and international scales, etc.

The smart specialisation policies channelled by the regional government through cluster support policies target some key industrial sectors for the future of Navarre economy like the food-processing or automobile sectors, while other strategic sectors for the smart specialisation of Navarre like the biomedicine sector are being supported through regional public investment in research infrastructures and provision of equity capital (from Sodena public venture capital firm) to emerging biotech companies.

Smart specialisation policies of Navarre are not being decided top-down; they are based on the availability within the region of a critical mass of technology, and market knowledge in several specific sectors mentioned above. The role of the regional government is to reinforce the innovation potential of these sectors by stimulating and supporting the cooperation of their stakeholders around cooperative RTD and innovation activities at regional, national and international level, and by co-financing their research infrastructures.
3.6 Possible future orientations and opportunities

Different innovation policies have been developed over more than a decade under the three consecutive Technological Plans of Navarre. These have been self-financed by the regional government thanks to Navarre's tax collection policy and budgetary autonomy. Further, the development of a continuous innovation culture has lead to Navarre ranking first in Spanish regions in terms of R&D effort over GDP, and the region has been able to consolidate the international competitiveness of an industrial infrastructure which incorporates a considerable number of sectors, both emerging (like medical biotechnology, medical devices, mechatronics or renewable energies) and mature (like the food-processing or automotive sectors). There is also a constant intangible and knowledge-based support made by public and private technological agents and the three Universities (the Public University of Navarre, the National University of Distance Education and the University of Navarre –private–). The universities have propitiated the availability of a significant percentage of skilled people working in high-tech and medium-tech industrial activities above the Spanish average.

In May of 2008, the Government of Navarre trusted the regional innovation agency ANAIN to start the planning process to build up the regional strategic programme named MODERNA (a new Model of Economic Development of Navarre). MODERNA is backed with the support of the main political, economic and social agents of Navarre, and has the direct involvement of the three Universities located in Navarre. They are seen as an indispensable driving force to generate a new regional economic model based on knowledge and human capital.

Within the MODERNA initiative, an evaluation process was initiated which aimed to identify the main working principles for improving Navarre welfare, sustainable growth and quality of life. Within each principle, different approaches for relevant regional industrial sectors have been identified. Thus, there are regional sectors like the automotive or the construction sector, which will need to be ‘reinvented’ or transformed into more innovative and efficient sectors (cf. trends towards the electric vehicle, further development of renewable energy equipment or more sustainable and energy efficient buildings). There are other strategic regional sectors such as the renewable energy sector or the food-processing sector that benefit from a high innovation level and a consolidated competitive position in national and international markets but need to keep developing and introducing innovations in order to maintain their current competitive advantages. Finally, future promising sectors for the region have been identified such as medical biotechnology, medical devices and mechatronics. There are to be enhanced through the regional innovation policy and the MODERNA initiative.

With the achievement of this new economic model for Navarre, the forthcoming fourth Technological Plan of Navarre for the period 2012-2015 relies on, consolidates and substantially reinforces the efforts already made in the previous regional technology plans in fostering the cooperation and internationalization culture among Navarre innovation stakeholders. Navarre enterprises and research agents become better positioned to face open innovation approaches in a global context, and they take more benefit from the potential, which will offer the forthcoming Community VIII Framework Programme.
Appendix A  Bibliography


SODENA (Sociedad Desarrollo de Navarra / Society Development of Navarre) Main data of interest on Navarre. Available at: http://www.sodena.com/eng/datos/navarra.htm


STAR UP CAPITAL NAVARRA. (2011) Participamos en tu proyecto/ We participate in your project. Available at: http://www.startup.es/proyecto.html
Appendix B  Stakeholders consulted

1. Rafael Muguerza Eraso, Innovation and Information Society Director of the Innovation, Enterprise and Employment Department, Government of Navarre (17-01-2011)
2. Juan Carlos Artazcoz Sanz, Business Promotion Director, Government of Navarre (18-01-2011)
Appendix C  RIM Repository information
Baseline regional profile

- ESPAÑA
- NOROESTE
- Region Autonomous Region of Navarra
- NUTS Code ES22

Regional Profile

Introduction

The Chartered Community of Navarre is situated in the north of Spain, at the western end of the Pyrenees, where it shares a 163 kilometre stretch of frontier with France. It has a land area of 10,421 square km and is bordered, to the east, by the Community of Aragon (more precisely by its regions of Huesca and Zaragoza), to the south by the communities of Aragon and La Rioja, and to the northwest by the Basque Country (more precisely by its regions of Alava and Guipuzcoa).

The region of Navarre has the highest R&D budget of all Spanish regions and it is one of the most innovative in Europe. Under the Third Technology Plan of Navarre, the Government of Navarre is planning to invest a total €229m during 2008-2011 (62% more budget than in the Second Technology Plan, 2004-2007). The plan's main goal is in line with those of the EU: increasing R&D budget up to 3% of the GDP and fuelling two thirds of this budget into the private sector.

Repository

Support measures

- Identification and preparation of European and international R&D proposals
- Stimulation and support for R&D business projects
- Identification and promotion of technological cooperation in R&D
- Support for new innovative technology-based companies
- Contracting and mobility of technologists and doctors for R&D activities
- Competitiveness support programme

Policy documents

- Study of trend of emergent sectors
- Third Technology Plan for Navarra
- MODERNA (New Model of Economic Development for Navarre)

Organisations

- Innovation and Technology Agency of Navarra
- Innovation, Enterprise and Employment Department of the Government of Navarra.
- Navarran European Business Innovation Centre (CEIN)

Economy

The population of Navarre is 605,022 inhabitants that represent a 1.46% of the total Spanish population. In terms of municipalities, 42.3% of the population of Navarre lives in cities of more than 20,000 inhabitants, namely Pamplona, Tudela and Barañain.

Over the past 50 years, Navarre has undergone a deep socio-economic change. Navarre has shifted from an agriculture-based economy to a balanced and dynamic economy that corresponds to a modern region. In addition, the Constitutional Law for Reintegration and Improvement of the Regional Government of Navarre (1982) expressly states the ability of Navarre to maintain, establish and control its own fiscal system.
Thus, in the structure of Gross Valued Added (GVA) for Navarre corresponding to 2007 the industrial sector accounted for a 28.5% of the total GVA of the region, as opposed an 18% of the same sector in whole Spain.

Navarre is one of the richest regions of the 27 countries that make up the EU, with a gross domestic product (GDP) of 129.2 (being 100 the European average). The main sectors for GDP and employment are the following:

- Farming and stockbreeding: 2.5% of the GDP, 13,450 workers
- Industry: 27.8% of the GDP, 72,175 workers
- Construction: 10.0% of the GDP, 30,800 workers
- Services: 59.7% of the GDP, 167,200 workers

A network of small and medium-sized companies constitutes the region's industrial structure. There is also a significant presence of productive plants belonging to multinational corporations. A large part of these industrial plants, characterised by their cutting-edge technology, their significant export capacity and their knock-on effect on the rest of the economy, belong to the two most important sub-sectors in Navarre's industry: car manufacturing and machinery and equipment. These two sub-sectors along with the third one, agro-food industry, provide over half of Navarre's industrial GAV.

The diversification of activities within the sector made a significant progress towards the late 90's, thanks to the implementation and development of a wind-power industry that is considered to have a high growth potential.

Navarre's unemployment rate is 10.53% and the Spain current unemployment rate is 18.83%. As a result, Navarre is part of the core-group of Spanish regions registering the highest indicators of social wellbeing.

Research, Development & Innovation

Research and development (R&D) expenditure in terms of GDP has increased from 1.89% in 2007 to 1.92% in 2008. In fact, Navarre was the third largest investor in R&D in 2008 among the Spanish regions. In addition, the spending by the private sector in R&D showed a growth rate of 12.9% in 2007.

The Spanish regions that made the greatest investments in R&D in 2008 were the Community of Madrid (2.00% of GDP), the Basque Country (1.96% of GDP), Navarre (1.92%) and Catalonia (1.61%).

The number of people employed in R&D in Navarre in a full time basis increased by 10.8% over 2007. Thus, in 2008 a total of 5,409 persons were devoted to R&D activities in full-time equivalent, representing 18.7 per thousand of the employed population.

The Government of Navarre has been continuously defining and implementing successive regional innovation policies, addressing the reinforcement of the regional scientific and technological research infrastructure and resources as well as the stimulation of the innovation capabilities and performance of the business sector.

A first regional regulatory framework to promote technological innovation among business was early adopted in 1982 by the regional Parliament of Navarre, and it was progressively updated and increased by the regional government during two decades as the cornerstone of the regional innovation policy in Navarre.

In 1999, a significant quantitative and qualitative step further was made, as the regional government, through its Directorate of Innovation and Technology, defined and approved the first multi-annual Regional Technology and Innovation Plan of Navarre for the period 2000-2003 with a regional public budget of €120m. Before ending it, a second multi-annual Regional Technology and Innovation Plan was designed and adopted for the period 2004-2007, with a regional public budget of €140.9m. The third Regional Technology and Innovation Plan which is currently in force for the period 2008 -2011 has a regional public budget of €228.9m.

During the 2000-2007 period the successive 1st and 2nd Regional Technology and Innovation Plans have supported and financed 1,140 industrial R&D projects from regional firms of Navarre, which generated an R&D business expenditure of €828m.

Governance

The main innovation policy trends of Navarre are promoted and implemented by The Directorate of Enterprise and Innovation, from the Regional Ministry of Innovation, Enterprise and Labour of Navarre.

The directorate of Enterprise and Innovation is supported by ANAIN (Innovation and Technology Agency of Navarre) and CEIN (Navarran European Business Innovation Centre).
ANAIN is a public enterprise created in 1999 to promote the quantitative and qualitative innovation increase in Navarre. It contributes to the economic and social development of the region by:

- Coordinating the definition of MODERNA, a new economic model for Navarre, its start-up, monitoring and constant updating.
- Fostering collaboration among the science - technology - enterprise system's agents in Navarre and their participation in the international R&D framework.
- Consolidating and promoting Navarre as a global reference in R&D.
- Promoting technology transfer and strategic surveillance.
- Managing the creation of sectorial and thematic panels as well as clusters.
- Promoting training in innovation and technology.
- Establishing the appropriate channels to raise awareness and disseminate the culture of innovation and the incorporation of new technologies among the science-technology-enterprise agents.
- Communicating and disseminating the benefits of innovation to the Navarre's society.

CEIN is a service at the disposal of SMEs and entrepreneurs in Navarre that seek to consolidate and diversify the region's economic and industrial environment. Its aim is to identify, promote and develop business projects and encourage innovation in Navarran companies. CEIN's specific activities are:

- Business creation
- Incubation
- Consolidation
- Information technology
- Innovation
- Education initiative
- Funding; Management of three funds to financially support business ideas: Start Up, Youth Fund and Capital Launching Fund.

Policy

The Third Technology Plan for Navarre (2008-2011) promotes R&D and innovation activities according to a set of priorities or areas that have been continuously promoted by the regional government during the last decade. These supported priorities are:

- Innovation, in order to convert knowledge into financial and social results;
- Collaboration in R&D provided that no single entity has all the knowledge at its disposal to be competitive;
- Education and training provided that qualified people generate and apply the knowledge;
- Internationalisation of R&D, since knowledge excellence has neither regional nor national boundaries.

Total budget for these priorities in 2009 was €53m. The budget has increased up to €60m in 2010 and €68m is forecast for 2011. Every year, innovation activities account for around 56.5% of the budget and collaborative activities for 31.5%.

Support for innovation activities is carried out by means of financing R&D projects for companies and RTDs organisations. Collaborative projects, either amongst companies of the same country or from foreign countries, are particularly encouraged. Creation of stable R&D structures within companies is also widely promoted.

Likewise, it is important to join qualified technicians to companies that present a high potential for their future development. Particular grant lines are open for this purpose.

Besides, grant lines have been promoted during years in order to facilitate companies generating continuous innovative dynamics and allowing them to realise their innovation development potential and to be acquainted with existing innovation funding schemes. By means of this grant line, consulting companies specialised in R&D can identify inexperienced companies and guide them through their first R&D and innovation activities. In this way, an innovation culture has been progressively spread among the regional business fabric in the last decade.

Support measure

- ESPAÑA
- NORDESTE
Support Measure

Title of measure
Identification and preparation of European and international R&D proposals

Full title
Identificación y preparación de propuestas europeas e internacionales I+D+i

Duration
From: 2008
To: 2011

Policy objectives
- 2.2.3. R&D cooperation
- 4.1.2. Support to innovation in services
- 4.2.2. Support to organisational innovation incl e-business
- 4.2.3. Support to technology transfer between firms

Presentation of the measure

The profit made by companies by means of their participation in international programmes is large. The benefit for the participating entities is reflected in the following aspects: on one hand, participants increase their technological level and, on the other hand, participants also foster their international collaborative relationships.

However, participation is complex. It requires a good project idea aligned with the priority of the programmes, an excellent scientific and technological level and a qualified consortium.

The main objective is to stimulate the culture of technological cooperation at European and international level through:
- Performing individualised analysis for the detection of opportunities (40 analyses to be done in 2010 and a total of 160 during 2008-2011).
- Encouraging participation of entities in international proposals (40 participations in 2010 and a total of 140 during 2008-2011).
- Encouraging leadership in international projects (12 leadership in 2010 and a total of 40 during 2008-2011).

Therefore the supported activities are:

a) Support in the detection of opportunities: implementation of individualised analysis.
b) Assistance in project identification and its checking with officers from the European Commission.
c) Planning of the project presentation.
d) Preparation and submission of the proposal.
e) Contract negotiations (in case of approval).

The beneficiaries of the measure are industrial and service companies, either public or private.

Budget, source and type of funding
Currency: EUR

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Private funds
Other
Form of funding provided

- Grants

Policy learning

**Extent 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 measure might have a more positive impact if it would promote the participation of companies with large experience in national and regional R&D programmes. This expertise would facilitate the submission of high-quality proposals and would ease achieving excellent results. Then these companies could be an example to other nearby regional companies to participate in European programmes.

**Do's and Don'ts**

Two important things that need to be done: the first one is to select a group of consultants experienced in preparing and submitting collaborative R&D proposals to European and international programmes. The second aspect is to be selective and target the measure upon companies that have shown an intensive R&D activity and have participated in several national R&D programmes. The participation of experienced companies would encourage the participation of other companies with less experience in international programmes.

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

Yes

Organisation(s) responsible

- [Innovation, Enterprise and Employment Department of the Government of Navarra](#)

**Support measure**

- [ESPAÑA](#)
- [NORESTE](#)
- Region Comunidad Foral de Navarra
- NUTS Code ES22

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**Support Measure**

**Title of measure**

Stimulation and support for R&D business projects

**Full title**

Estimulación y apoyo a proyecto de I+D+i empresarial

**Duration**

From: 2008
To: 2011

Policy objectives

- 2.3.1. Direct support of business R&D (grants and loans)
- 2.3.2. Indirect support to business R&D (tax incentives and guarantees)
- 5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns)
- 4.1.1. Support to sectoral innovation in manufacturing

**Presentation of the measure**

Encourage incorporation of the culture of innovation in the strategy of many Navarran companies without previous experience in R&D. This is especially important for traditional companies with mature products, threatened by foreign low cost products.

On the other hand, the measure supports the development of R&D business projects to enable consolidating the economy of Navarre and the regional system of science and technology.

Finally, to facilitate management of business strategies and long-term support to multi objective projects submitted by a single company.

The main objectives are:

a) To perform individualised analysis through certified consultants: analysis and assistance in R&D.

b) Support the development of R&D for industrial and service companies (230 projects for funding in 2010 and a total of 880 during 2008-2011). This support measure would allow the improvement or development of new products, processes and internal organisational systems.

c) Support for R&D multi purpose at a medium and long term (8 projects for funding in 2010 and a total of 28 during 2008-2011).

d) Support for the creation and consolidation of business units dedicated exclusively to R&D (3 projects for funding in 2010 and a total of 12 during 2008-2011).

Therefore the supported activities are:

a) External assistance in order to prepare and submit the proposal of the project to be undertaken by the company.

b) Business project to develop R&D activities that:

   - Subcontract more than 10% to universities and technology centres.
   - Strengthen R&D business units.
   - Develop strategic objectives for a sector or technological areas of an unfavourable sector.
   - Pursuing radical innovations

The beneficiaries of the measure are industrial and service companies, either public or private.

**Budget, source and type of funding**

**Currency: EUR**

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Form of funding provided

- Grants
- Tax incentives (including reduction of social charges)

**Policy learning**

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

The measure has achieved its intended targets in terms of results (e.g. number of enterprises investing in innovative projects, people trained)
Evidence of outcomes based on evaluation and other evidence

The long evaluation periods can cause delays in getting the final resolution, not fitting properly to the timeframe of the project implementation period.

On the other hand, the certification (as R&D or innovation activities) of the different items budgeted for the project implementation allows the application of tax-deduction incentives for each specific item.

Do's and Don'ts

There is a need of an individualised assessment that considers the reality of the business.

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

Yes

Organisation(s) responsible

- Innovation, Enterprise and Employment Department of the Government of Navarra.

Support measure

- ESPAÑA
- NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

Support Measure

Title of measure

Identification and promotion of technological cooperation in R&D

Full title

Identificación y promoción de cooperación tecnológica en I+D+i

Duration

From: 2008
To: 2011
Presentation of the measure

There are no companies that have the necessary technological knowledge by themselves to maintain a competitive advantage. It is necessary to take appropriate measures at regional level to increase R&D cooperation projects developed by actors from Navarre.

The main objectives are:

- Consolidation and strengthening of collaboration networks or cluster between companies, research institutes or universities to identify common problems to a sector (9 proceedings of consolidation in 2010 and a total of 36 during 2008-2010).
- Promotion of the technological cooperation culture through individualised analysis in companies focused on identification, definition and implementation of R&D collaborative projects at a regional level (30 analysis in 2010 and a total of 100 during 2008-2011).
- Designing programs to support collaborative projects with other regions at a national and European level (ERA-Net) (3 projects in 2010 and a total of 7 during 2010-2011).

Therefore the supported activities are:

a) Creation of working groups in emerging sectors.

b) Dynamism of working groups to identify ideas.

c) Design and implement an individualised analysis programme to identify opportunities for business cooperation.

d) Contracting of experts for the design of action plans in different sectors.

The beneficiaries of the measure are companies and public administrations.

Keywords

- Small and medium-sized enterprises

Budget, source and type of funding

Currency: EUR

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Form of funding provided

- Grants

Policy learning

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

It is too early to judge the success of the measure (e.g. results of first call for proposals still not known).

Evidence of outcomes based on evaluation and other evidence

The creation of working groups by sector is of great interest. These working groups should include both emerging companies in the
sector, as SMEs, and traditional companies (as well as large and strategic companies).

Development actions may arise as a result of the aforementioned working groups. Some actions may bring immediate results to a short-term and other actions may bring more ambitious objectives to a long-term.

Do's and Don'ts

It can be very positive to create a distribution network of ideas and look for partners to facilitate the inter-linkages between companies.

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

Yes

Organisation(s) responsible

- Innovation and Technology Agency of Navarra
- Innovation, Enterprise and Employment Department of the Government of Navarra.

Support measure

- ESPAÑA
- NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

Support Measure

Title of measure
Support for new innovative technology-based companies

Full title
Apoyo a nuevas empresas innovadoras de base tecnológica

Duration
From: 2008
To: 2011

Policy objectives
- 4.3.1. Support to innovative start ups incl Gazelles
- 2.3.1. Direct support of business R&D (grants and loans)
- 4.2.2. Support to organisational innovation incl e-business
- 4.3.2. Support risk capital

Presentation of the measure

It is important to mention that a key issue for the future of different business sectors is the transfer of R&D and acquired knowledge into marketable ideas. Although these kind of enterprises represent a small percentage of the total business, its importance is considerable in the technological innovation processes.

However the risk is important. The adoption of measures to facilitate the emergence of innovative ideas and the consolidation of industrial business projects are basic tools to increase the number of this type of enterprises.

The main objectives are:
a) Detection of project ideas and join forces in supporting the creation of new innovative companies.

b) Support to innovation centres and universities to act as agents for promoting the creation of new technology-based companies (20 ideas for funding in 2010 and a total of 80 during 2008-2011).

c) Establish a technical assistance and advice for new technology-based companies (18 assistances to be done in 2010 and a total 69 during 2008-2011).

Therefore the supported activities are:

a) Coordination of experienced entities in providing support services.

b) Strengthen support services: technical feasibility studies, patentability, potential market, etc.

c) Assistance in the execution of the business plan (consolidation of the management team, searching for investors…)

d) Mediate in the search for funding.

e) Organise an annual competition at regional level for the detection of ideas.

The beneficiaries of the measure are industrial and service companies, either public or private.

Budget, source and type of funding

Currency: **EUR**

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Form of funding provided

- Grants
- Venture capital (including subordinated loans)

Policy learning

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

It is too early to judge the success of the measure (e.g results of first call for proposals still not known).

**Evaluation report links**

- Irati Magikoa: Servicios turísticos innovadores
- Investic, soluciones integrales en Software Libre
- Imagina Biotek: apoyo a la creación y consolidación de una empresa biotecnológica
- Investic, soluciones integrales en Software Libre
- Imagina Biotek: apoyo a la creación y consolidación de una empresa biotecnológica
- Irati Magikoa: Servicios turísticos innovadores

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

Personalised advice in setting up a business is a key factor because it facilitates the financing and the bureaucracy. All this helps the company to focus its efforts in technological aspects.

**Do's and Don'ts**

It is basic a aspect the creation of an appropriate project-idea detection programme. The purpose of the action will create the proper channels to identify all possible business ideas, selecting those most likely to succeed for support.
This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible
- Navarran European Business Innovation Centre (CEIN)

Support measure

- ESPAÑA
- NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

Support Measure

Title of measure
Contracting and mobility of technologists and doctors for R&D activities

Full title
Contratación y movilidad de tecnólogos y doctores para tareas de I+D+i

Duration

From: 2008
To: 2011

Policy objectives

- 3.2.3. Mobility of researchers (e.g. brain-gain, transferability of rights)
- 3.3.1. Job training (LLL) of researchers and other personnel involved in innovation
- 3.3.2. Recruitment of skilled personnel in enterprises
- 3.2.2. Career development (e.g. long-term contracts for university researchers)

Presentation of the measure

The lack of qualified personnel devoted to R&D in companies is a limiting factor for the innovative activity in enterprises. In addition, companies with a certain level of R&D activity often find difficult to train their staff in R&D.

The main objectives are:

a) Attract, retain and manage talent in terms of sectorial and technological needs.
b) To promote the hiring of technicians and doctors to work in R&D in companies (60 support to be hired in 2010 and a total of 200 during 2008-2011).
c) Increase the stays of the R&D staff of companies in centres and universities (10 stays for 2010 and a total of 40 during 2008-2011).
d) Increase the training of company staff in R&D activities (40 courses in 2010 and a total of 150 during 2008-2011).
e) Encourage sojourns to the technicians of research centres and universities in companies (10 stays in 2010 and a total of 40 during 2008-2011).

Therefore the supported activities are:

a) Stay of staff of enterprises in technological centres and universities.
b) Contracting by companies of technicians and doctors to work in R&D.
c) Attendance (tuition and travel) to training courses.

The beneficiaries of the measure are companies, Research Centers and Universities.

Budget, source and type of funding

Currency: **EUR**

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Form of funding provided

- Grants

Policy learning

**Extent 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**

Facilitate the entry of researchers in business. This allows consolidation of R&D within the company and fosters a culture of innovation.

**Do's and Don'ts**

The search and contract of personnel is a long process that must be taken into account in the design of any measure.

The conditions of employment and the curriculum of the researcher should be set in advance. This will ensure good working conditions and qualified staff.

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

Yes

Organisation(s) responsible

- Innovation and Technology Agency of Navarra
- Innovation, Enterprise and Employment Department of the Government of Navarra.

**Support measure**

- **ESPAÑA**
- **NORESTE**
- Region Comunidad Foral de Navarra
- NUTS Code ES22

**Support Measure**
Title of measure
Competitiveness support programme

Full title
Ayudas a la competitividad

Duration
From: 2008
To: 2011

Policy objectives
- 3.3.1. Job training (LLL) of researchers and other personnel involved in innovation
- 4.2.1. Support to innovation management and advisory services
- 4.2.2. Support to organisational innovation incl e-business
- 2.2.2. Knowledge Transfer

Presentation of the measure

The innovation in any company goes through a systematic process of generating ideas, which is a key issue for a good working environment of the company. Conclusions derived from analysing outside information (market, customers, competitors, technologies, regulations, etc) allow the company to take better decisions in terms of innovation and to better plan the product to be developed or the technology to be incorporated.

Usually the knowledge required for this process does not exist in the company. In fact, the multidisciplinary industrial activities show the necessity of getting support from external experts. However, accessing this external knowledge is not easy. Searching for providers and payment of their costs require additional economic support in order to achieve an efficient management.

The main objectives of this programme are:

a) To support priority projects that develop technological surveillance tools (80 projects to be funded in 2010 and a total of 280 during 2008-2011).

b) To support priority projects that develop R&D planning tools (450 projects to be funded in 2010 and a total of 1800 during 2008-2011).

Therefore the activities that this programme supports are the following:

a) Implementation of management systems in environmental quality and safety (ISO, UNE, OSHAS).

b) Elaboration of plans for technological improvement.

c) Product design which incorporates big changes.

d) Request for an international patent.

e) Setting up strategic surveillance.

f) Training of technical staff. Specific training courses. Brief stay in research centres and companies (national and international)

g) Workshops on: knowledge management, cooperation between companies, innovation planning, strategic planning…

The beneficiaries of the measure are industrial and service companies, either public or private.

Budget, source and type of funding

Currency: EUR

<table>
<thead>
<tr>
<th>Source of funding</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<tr>
<td>National public funds</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional public funds</td>
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<td>3,960,000</td>
<td>4,140,000</td>
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<td>Private funds</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form of funding provided

- Grants

Policy learning

**Extent 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**

In many cases the implementation of activities by businesses require long implementation periods. This makes it difficult to adapt the activity of the company to the submission period of the call of proposals (often short calls).

Therefore, having a measure with either longer deadlines or as a permanent open call, would adapt better to the implementation periods of the company. This would be a very positive aspect.

**Do's and Don'ts**

To design a tool able to take into account all possible activities that might carry out a company in order to enhance its competitive advantage, both at organisational and productive level.

The nature of the activities to be carried out changes frequently (technological surveillance, quality-related issues, productivity studies...). Thus, it would be recommendable to establish a ranking, in order of importance, of the most relevant activities. This ranking would help to better evaluate the activities and therefore to assign the grant. The awarded grant would be higher or lower depending on the ranking position of the activity to be carried out.

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

Yes

Organisation(s) responsible

- Innovation, Enterprise and Employment Department of the Government of Navarra.

**Policy document**

- **ESPAÑA**
- **NORESTE**
- Region Comunidad Foral de Navarra
- NUTS Code ES22

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**Policy Document**

Study of trend of emergent sectors

Estudio de tendencia de sectores emergentes

**Organisation responsible**

[Navarran European Business Innovation Centre (CEIN)](mailto:navarrancorporation@cein.org)
The study throws a global look on trends in emergent sectors, and hypotheses are formulated on scenarios of Navarre in 2020, one future that presents possibilities in the following six contexts:

- Services of tourism, image, arts and leisure. It is focused on the industry of tourism, heritage, entertainment and audiovisual production.

- Services to people, well-being and quality of life. It is focused on health services, housing, and increase of the life quality. Important aspects such as lifestyle and life quality are pointed out.

- Services to the companies, consultancy and trade. Externalisation of enterprises, competitiveness, management process, creation of networks and advance marketing services are some of the underlined issues.

- IT Services, industries and talents in R&D. New IT services will foster good working environment and numerous business opportunities.

- Services of eco-sustainability and environment. Issues such as eco-design, waste treatment, water saving and alternative energy sources will be pointed.

- Services of information, formation and communication. Education will be presented as a continuous learning process.

Year of publication
2008

Link to website

Policy document

- ESPAÑA
- NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

Policy Document

Third Technology Plan for Navarra
TERCER PLAN TECNOLÓGICO DE NAVARRA

Organisation responsible

Innovation, Enterprise and Employment Department of the Government of Navarra.

Content

The Third Technology Plan for Navarre (2008-2011) fosters R&D activity of those companies without previous experience in the field. However, it also encourages a more radical and intense approach to R&D among participants with experience on the regional innovation plan, by promoting greater collaboration in R&D amongst different partners, either at regional, national or international level. Allocated funds until 2011 represent an increase of 62% compared to the funds budgeted in the Second Technology Plan (2004-2007). The overall budget of the Third Technology Plan is €228,969m.

The fundamental working principles are: innovation, cooperation in R&D; education and training and internationalisation of R&D.
Policy Document

MODERNA (New Model of Economic Development for Navarre)
MODERNA (MODELO DE DESARROLLO ECONÓMICO DE NAVARRA)

Organisation responsible

Innovation, Enterprise and Employment Department of the Government of Navarra.

Content

MODERNA is a strategic plan to define a new model of economic development for Navarre in the medium and long term. Based on a process of strategic reflection about the potential of Navarre and focusing specifically on people, the aim of this plan is to provide a vision of how the Navarre of the future ought to be in order to tackle the challenges raised by the new conditions of the global economy in a knowledge based society.

The contents of the plan are the following:

- A vision of how the Navarre of the future ought to be.
- The path that must be taken in order to reach this goal.
- The changes (sector specific and transversal) that must be undertaken.
- The innovative economic sectors that must be prioritised and supported.
- The initiatives and resources that must be allocated to its development.

MODERNA is an initiative of Navarre's Regional Government, which will be created together as a collaborative endeavour between economic and social agents, public administrations, educational and research institutions and others.

Year of publication

2010

Link to website

Organisation

- ESPAÑA
- NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

Organisation

Innovation and Technology Agency of Navarra
Agencia navarra de Innovación y Tecnología S.A. (ANAIN)

Link: http://www.anain.com/
Avenida Carlos III, 11 - 1º dcha
PAMPLONA, 31002

Mission

ANAIN (Innovation and Technology Agency of Navarra) is a public company formed in 1999 aimed at promoting quantitative and qualitative increase of innovation in Navarre.

ANAIN contributes to the economic and social development by means of:

- Coordinating MODERNA, the new economic model for Navarre, including its start-up, monitoring and constant updating.
- Fostering collaboration amongst science-technology-enterprise agents in Navarre and their participation in the international R&D framework.
- Consolidating and promoting Navarre as a global reference in R&D.
- Promoting technology transfer and strategic surveillance.
- Managing the creation of sectorial and thematic panels and clusters
- Promoting training in innovation and technology
- Establishing appropriate channels to raise awareness and to disseminate the culture of innovation and incorporation of new technologies among science-technology-enterprise agents.
- Communicating and disseminating the benefits of innovation

Activities

**Coordination of R&D:** To foster and introduce R&D in Navarre.

- Knowledge and coordination of the science-technology agents in Navarre
- Preparation of the current technological scenario and its updating
- Promoting the science-technology system of Navarre outside the region

**Technology Transfer:** To accomplish a dynamic transfer of knowledge between science-technology-enterprise agents to support industries, making them more competitive and generating wealth for Navarre.

- Administration of the Innovation Agency as a workspace for science-technology-enterprise agents to establish relationships and transfers
- To match the technological demand and supply

**Promotion of European participation:** To increase the participation of Navarre, through science-technology-enterprise agents in the European R&D framework and to consolidate at a national level.

- Knowledge of the European Research Space, its training activities, calls and agents.
- To promote and support the participation of science-technology-enterprise agents in the international innovation space in order to increase:
- FP 7 (Framework Programme) and European CIP (Competitiveness and Innovation framework Programme)
- Participation in networks
- Knowledge and participation in European networks of interest
- Monitoring the participation of Navarre in European projects

**Promotion of Sectorial Competitiveness:** To support different business sectors of Navarre to improve their competitiveness through cooperation and innovation

**Strategic Surveillance:** To establish the necessary conditions for an effective strategic surveillance to be carried out by the agents of the science-technology-enterprise system, including ANAIN itself.

**Fostering and Promotion of R&D:** To disseminate and promote research, development and innovation in Navarre.

Aforementioned activities are reflected into the following examples:
- Establish a meeting point through its website for consultants and industry, supporting knowledge transfer between them.
- Disseminate through conferences, national and international R&D programs to encourage the participation of enterprises.
- To make individualised analysis to companies to establish a starting point to improve their competitiveness and boosting R&D within the company.

**Organisation**

- ESPAÑA
  - NORESTE
- Region Comunidad Foral de Navarra
- NUTS Code ES22

**Innovation, Enterprise and Employment Department of the Government of Navarre.**

Departamento de Innovación Empresa y Empleo del Gobierno de Navarre


Parque Tomás Caballero 1, 6ª Planta
PAMPLONA, 31005

**Mission**

The department promotes the best economic, technical, social, labour and safety conditions for business, entrepreneurs, self-employed and workers in general to develop their activities in a competitive manner. This promotion is sectorial and territorially balanced and sustainable, seeking at creating employment, wealth and quality of life for the region of Navarra.

It also promotes a more radical and intense R&D amongst the agents of the innovation system of Navarre. Moreover, by means of further promotion of the cooperation between different actors in R&D and innovation, both at regional and national and international level, the development of the most relevant productive sectors of Navarre is also stimulated.

**Activities**

The main activity areas running under the Department of Innovation, Enterprise and Employment of the Government of Navarre are the following:

- To encourage the creation of skilled jobs within industries as a source of knowledge and their technification.
- Constant knowledge in R&D and innovation; encouraging private investment in R&D to make possible a continuous improvement in competitiveness (as regards process and product) in the industrial sector.
- To create a network of technological centres with the capacity to respond to the needs of the sector and to act as a supporting point in their R&D activities.
- Diversification and strengthening of the business sector (food and drink, automotive, capital equipment, biotechnology, bioclimatic construction, renewable energy, logistics and transport, culture and leisure tourism, ICT, health and nanotechnology).

- To design and implement a new model of sustainable energy for all the population in Navarre. Encourage the development and application of new technologies that are environmentally friendly.

- To encourage entrepreneurs and freelancers to create new companies, services and to generate employment.

- Internationalization of the economy of Navarre. Promote exportation through a better knowledge of international markets.

### Organisation

- **ESPAÑA NORESTE**
  - Region Comunidad Foral de Navarra
  - NUTS Code ES22

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#### Organisation

Navarran European Business Innovation Centre (CEIN)

Centro Europeo de Empresas e Innovación de Navarra (CEIN)

Link: [http://www.cein.es/](http://www.cein.es/)

Polígono Industrial Mocholi. Plaza CEIN, 5.
NOAIN,
31110

**Mission**

The Navarran European Business Innovation Centre (CEIN) is a service at the disposal of SMEs and entrepreneurs in Navarre that seek to consolidate and diversify the region's economic and industrial environment. They nurture entrepreneurial spirit, identify, promote and develop business projects and encourage innovation in Navarran companies.

CEIN's philosophy is European-orientated, both in terms of the work methodology that it employs and in terms of the constant search for innovative services and the detection of new business opportunities or economic development projects that it conducts in collaboration with other European regions.

Its shareholders comprise of 45 Navarran companies and organizations, chaired by the Government of Navarre, the main shareholder, through the Autonomous Community's Department of Industry. Despite having the legal status of a Public Limited Company, CEIN is a non-profit making organisation.

**Activities**

By improving its management model, CEIN strives both to maintain the diversity, wealth and innovation of its working methods from a business ethics standpoint and to continuously enhance the satisfaction of the clients, both internal and external, and its partners and sponsors.

Its specific activities supporting SMEs and entrepreneurs are:

**Business creation**

Advice on all aspects of business creation (market analysis, taxation, procedures for setting up, and subsidies, etc.) and to study the feasibility of the project to develop a business plan.

**Incubation**

Physical sheltering and offering certain common services to reduce, as far as possible the difficulties that a new company should take to strengthen its business plan.
Consolidation
Specific supports that fit in each case to the needs, strategies or objectives of the companies.

Information technology
Ensuring ICT (information and communication technologies) used by companies in Navarre through information, training and support to the implementation of solutions.

Encourage more companies on the Internet, enhancing the commercial transactions or other network business, especially SMEs and micro.

Improve the training of professionals and the competitiveness of the sector.

Innovation
Having a vocation, commitment and attitude to consider continuing improvements in all dimensions, taking advantage of opportunities to be more competitive and productive.

Education initiative
Encourage the introduction of entrepreneurial skills at various levels, from Primary to University, through Secondary and Vocational Training. In addition, it brings the world of business and the creation of innovative companies at various levels.

Funding
Management of three funds to financially support business ideas: Start Up, Youth Fund and Capital Launching Fund.
Appendix D Explanation of factors of Innovation Performance, Governance and Policy

D.1. Innovation Performance Factors

After having normalised all indicators to a common range of 0 to 1, a factor analysis or principle component analysis has been used to identify the main patterns, reducing the eight indicators into three main factors or components of innovation performance. The resulting factors can also be seen as composite or summary indicators.

<table>
<thead>
<tr>
<th>Innovation performance factors</th>
<th>Innovative entrepreneurship</th>
<th>Technological innovation</th>
<th>Public knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-technological innovators</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological innovators</td>
<td>0.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher education R&amp;D</td>
<td>0.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-R&amp;D innovation expenditure</td>
<td></td>
<td>-0.84</td>
<td></td>
</tr>
<tr>
<td>Business R&amp;D</td>
<td></td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>Patents</td>
<td></td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>Government R&amp;D</td>
<td></td>
<td></td>
<td>0.89</td>
</tr>
<tr>
<td>Tertiary educated</td>
<td></td>
<td></td>
<td>0.64</td>
</tr>
</tbody>
</table>

The first factor can be labelled as ‘Innovators or Innovative entrepreneurship’. It is mostly based on a high score on the share of both non-technological innovators (those introducing market- and or organisational innovations) as well as technological innovators (product and or process innovations) among SME’s in the region. This factor therefore identifies those regions where a large share of all SME’s are innovators.

The second factor is labelled ‘Technological innovation’ because it mostly refers to patent generating business R&D with relative low score on non-R&D innovation expenditures as share of their turnover. In regions where this factor shows a high score, technology generating firms are well represented.

The third factor is labelled ‘Public knowledge’. This component of innovation performance is based on the co-location of R&D expenditures at government research institutes and to a lesser extent on the share of population with tertiary education.

D.2. Governance Factors

The first distinctive governance characteristic is labelled ‘Autonomy’. For regions where the regional innovation strategy is politically binding and containing fixed targets, we also find the highest degree of both general institutional autonomy as well as autonomy regarding innovation policy. In essence, formalisation contributes to the autonomy factor and autonomy is associated with an assessment of innovation policy as effective.

The second distinctive characteristic is named: ‘Relying on Structural Funds’. It is based on the similarity in the answers regarding the strategic relevance and significance in terms of funding of EU Structural Funds for regional innovation policy. At the same time these regions report a low level of cooperation with other regions and the innovation system can be characterised as more public-driven.

A third distinctive factor is made up of the similar answers to the two other questions on coordination, namely the existence of vertical and horizontal coordination.
mechanisms. Finally, a fourth factor is labelled ‘Central, top-down’ because they combine a centralised policy delivery and top-down approach in policy design.

<table>
<thead>
<tr>
<th>Governance Factors</th>
<th>Autonomy</th>
<th>Relying on Structural Funds</th>
<th>Coordination mechanisms</th>
<th>Central, top-down</th>
</tr>
</thead>
<tbody>
<tr>
<td>- How formally binding is the regional innovation strategy document on the regional public authorities?</td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The general degree of institutional autonomy of the regional authorities in the region</td>
<td></td>
<td></td>
<td></td>
<td>.73</td>
</tr>
<tr>
<td>- To what degree is priority setting, design and monitoring of innovation policy subject to the design and of formalisation of the general set-up of institutions tasked with the development of innovation policy in your region (1=informal, 3=formal)</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Degree of institutional autonomy of regional authorities in your region with regard to the design and implementation of regional innovation policies</td>
<td></td>
<td></td>
<td></td>
<td>.68</td>
</tr>
<tr>
<td>- How effective is the regional governance process?</td>
<td></td>
<td></td>
<td></td>
<td>.58</td>
</tr>
<tr>
<td>- The relevance of the EU Structural Funds for regional innovation policy, for strategy development</td>
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<td></td>
<td></td>
<td>.79</td>
</tr>
<tr>
<td>- The significance of the EU Structural Funds for regional innovation policy, in terms of funding</td>
<td></td>
<td></td>
<td></td>
<td>.70</td>
</tr>
<tr>
<td>- Inter-regional co-ordination projects and mechanisms (e.g. co-operation between agencies in different regions)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- Characterise the regional innovation system according to key drivers of innovative activities (1=private, 2=different, 3=public)</td>
<td></td>
<td></td>
<td></td>
<td>.68</td>
</tr>
<tr>
<td>- Horizontal coordination projects and mechanisms between regional players (e.g. inter-departmental working groups, council or multi-sector platforms)</td>
<td></td>
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<td>.80</td>
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<tr>
<td>- Vertical co-ordination projects and mechanisms between local, regional, national and European authorities involved in designing or implementing innovation policy</td>
<td></td>
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<td>.73</td>
</tr>
<tr>
<td>- Regional system of policy delivery is centralised (3), mixed (2), or de-centralised (1)</td>
<td></td>
<td></td>
<td></td>
<td>.81</td>
</tr>
<tr>
<td>- Design of regional innovation policies follows a top-down approach (as opposed to bottom-up)</td>
<td></td>
<td></td>
<td></td>
<td>.80</td>
</tr>
</tbody>
</table>

D.3. Policy Factors

The first distinctive factor regarding the innovation policies is labelled ‘Public innovation policies’. A high contribution to this factor comes from the survey questions regarding: policies for public sector innovation, for open innovation, public procurement, and theme based policies aiming at societal goals.

The second policy factor is labelled: ‘Demand & service innovation policy’ because of the co-existence of demand-side policies and service innovation policies.

The third policy factor is named: ‘Cluster & S-I partner-ship policy’ since it is based on the frequent combination of Cluster policies and policies promoting new forms of public-private-partnerships for Science-Industry (S-I) co-operation and in addition the implementation of eco-innovation policies contributes to this factor.
The fourth factor is labelled ‘Research supply policy’ because it is based on the positive answers to the question on supporting research efforts (the supply side), in combination with an opposite negative answer to the question on ‘market and innovation culture (which is more on the demand side).

‘Policy making support’ is the name we have given to the fifth policy, similar to the main indicator. The last policy factor is ‘HR, creation & growth innovators’ which combines human capital development with policy aimed at creation and growth of innovative firms.

<table>
<thead>
<tr>
<th>Innovation Policy factors</th>
<th>Public innovation policies</th>
<th>Demand &amp; service innovation policy</th>
<th>Cluster &amp; S-1 partnership policy</th>
<th>Research supply policy</th>
<th>Policy making support</th>
<th>HR, creation &amp; growth innovators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies for public sector innovation</td>
<td>.72</td>
<td></td>
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<tr>
<td>Policies for open innovation</td>
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<tr>
<td>Public procurement policies</td>
<td>.64</td>
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<tr>
<td>Theme-based policies aimed at broader societal goals</td>
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<tr>
<td>Demand-side policies</td>
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<tr>
<td>Policies for innovation in services</td>
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<tr>
<td>Support for the internationalisation of innovation policy</td>
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<tr>
<td>Cluster policies</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Policies promoting new forms of public-private-partnerships for science-industry co-operation</td>
<td>.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eco-innovation policies</td>
<td>.58</td>
<td></td>
<td></td>
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<tr>
<td>Innovation related tax policies</td>
<td>.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support research efforts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.74</td>
</tr>
<tr>
<td>Market and innovation culture policies</td>
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<td></td>
<td>-.62</td>
</tr>
<tr>
<td>Support to policy making and horizontal policies</td>
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<td>-.79</td>
</tr>
<tr>
<td>Support human capital development</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.82</td>
</tr>
<tr>
<td>Support creation and growth of innovative enterprises</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.67</td>
</tr>
</tbody>
</table>
Appendix E  Statistical data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Comunidad Foral de Navarra (2000)</th>
<th>Comunidad Foral de Navarra (2008 or most recent)</th>
<th>EU 27 (2008 or most recent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Capita GDP (in Current EUR)</td>
<td>20,014.7</td>
<td>28,175.1 (2006)</td>
<td>25,131.9</td>
</tr>
<tr>
<td>Growth of Regional per Capita GDP (in %)</td>
<td>8.8</td>
<td>6.2 (2006)</td>
<td>0.7</td>
</tr>
<tr>
<td>Unemployment Rate (in %)</td>
<td>5.6</td>
<td>6.7</td>
<td>7</td>
</tr>
<tr>
<td>Gross Expenditure on R&amp;D (GERD; in current EUR)</td>
<td>94,6</td>
<td>333.9 (2007)</td>
<td>237,000.2</td>
</tr>
<tr>
<td>Share of Business Expenditure on R&amp;D in GERD (in %)</td>
<td>65.3</td>
<td>65.6 (2007)</td>
<td>63.9</td>
</tr>
<tr>
<td>Share of Population Involved in Life-long Learning (in %)</td>
<td>5.84</td>
<td>12.57 (2006)</td>
<td>9.34</td>
</tr>
<tr>
<td>Non-R&amp;D innovation expenditures of all enterprises as a percentage of turnover (normalised scores within a 0 (lowest) to 1 (highest) range)</td>
<td>N/A</td>
<td>0.3 (2006)</td>
<td>0.41 (2006)</td>
</tr>
</tbody>
</table>

Source: Eurostat and Community Innovation Survey
Appendix F  RIM survey responses
Please indicate the governance level that is most important for the design and implementation of innovation policy in the region (1 = regional level, 2 = national level, 3 = sub-regional level).

<table>
<thead>
<tr>
<th>Comunidad Foral de Navarra (ES22)</th>
<th>Average</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.52</td>
<td>50% 48% 2%</td>
</tr>
</tbody>
</table>

Please assess the general degree of institutional autonomy of the regional authorities in the region (1 = regional authority is an administrative appointee of the national government, 2 = regional authority including elected council but no legislative powers and no or minor tax raising powers, 3 = federated entity with legislative power in some but not all fields, limited or no tax raising powers).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.11</td>
<td>23% 43% 34%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please assess the degree of institutional autonomy of regional authorities in your region with regard to the design and implementation of regional innovation policies (1 = very low, 2 = low, 3 = average, 4 = high, 5 = very high).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3.10</td>
<td>7% 18% 39% 31% 5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The design of regional innovation policies follows a (1 = bottom-up approach, 2 = input from both sides, 3 = top-down approach, 4 = strong top-down approach).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.25</td>
<td>11% 57% 28% 4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To what degree is priority setting, design and monitoring of innovation policy subject to the design and formalisation of the general set-up of institutions tasked with the development of innovation policy in your region (1 = informal, 2 = mixed, 3 = formal).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.19</td>
<td>18% 45% 37%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is there a regional innovation strategy in the form of a published document (1 = yes, 2 = no)?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.34</td>
<td>66% 34%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if there are horizontal coordination projects and mechanisms between regional players (e.g. inter-departmental working groups, council or platforms with actors from different sectors) (1 = not yet very developed, 2 = somewhat developed, 3 = quite well developed).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.21</td>
<td>25% 39% 46%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if there are horizontal coordination projects and mechanisms between regional players (e.g. inter-departmental working groups, council or platforms with actors from different sectors) (1 = not yet very developed, 2 = somewhat developed, 3 = quite well developed).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.26</td>
<td>13% 49% 39%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if there are inter-regional co-ordination projects and mechanisms (e.g. co-operation between agencies in different regions) (1 = not yet very developed, 2 = somewhat developed, 3 = quite well developed).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1.88</td>
<td>27% 59% 14%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if there are vertical co-ordination projects and mechanisms between local, regional, national and European authorities involved in designing or implementing innovation policy (1 = not yet very developed, 2 = somewhat developed, 3 = quite well developed).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.02</td>
<td>20% 58% 22%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please characterise the regional innovation system according to key drivers of innovative activities (1 = private-driven, 2 = mixed, 3 = public-driven).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.26</td>
<td>12% 50% 38%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if the regional system of policy delivery is centralised or de-centralised (1 = rather decentralised, 2 = mixed form, 3 = rather centralised).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.47</td>
<td>5% 42% 52%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate the significance of the EU Structural Funds for regional innovation policy in terms of funding (1 = <10%, 2 = 11-24%, 3 = 25-49%, 4 = 50-75%, 5 = >75%)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1.96</td>
<td>14% 30% 19% 19% 18%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate if there is a regional innovation strategy in the form of a published document (1 = yes, 2 = no).

<table>
<thead>
<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.10</td>
<td>90% 10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is there a regional innovation strategy in the form of a published document (1 = yes, 2 = no).

<table>
<thead>
<tr>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.12</td>
<td>88% 12%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Involvement of the Region in Hot Innovation / RTDI Policy Topics (0 = none, 1 = planned, 2 = implemented).

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.09</td>
<td>34% 24% 43%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Support for the internationalisation of innovation policy.

<table>
<thead>
<tr>
<th>1</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.28</td>
<td>31% 10% 59%</td>
<td></td>
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</tbody>
</table>

Support for innovation in services.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.77</td>
<td>52% 19% 29%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies promoting new forms of public-private-partnerships for science-industry co-operation.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.68</td>
<td>58% 15% 27%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies for open innovation.

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.55</td>
<td>64% 18% 18%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies for innovation in services.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.64</td>
<td>60% 17% 24%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies for public sector innovation.

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.39</td>
<td>72% 17% 11%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Public procurement policies.

<table>
<thead>
<tr>
<th>1</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.37</td>
<td>77% 9% 14%</td>
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<td></td>
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</tbody>
</table>

Innovation related tax policies.

<table>
<thead>
<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.80</td>
<td>50% 19% 30%</td>
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</tbody>
</table>

Eco-innovation policies.

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<thead>
<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.72</td>
<td>53% 22% 25%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Theme-based priorities aimed at broader societal goals.

<table>
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<tr>
<th>1</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2.71</td>
<td>21% 24% 32% 12% 12%</td>
<td></td>
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</tbody>
</table>

Priorities on which regional innovation policy is most strongly focused (1 = very low, 2 = low, 3 = average, 4 = high, 5 = very high).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3.94</td>
<td>1% 12% 20% 25% 42%</td>
<td></td>
<td></td>
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</tbody>
</table>

Support to policy making and horizontal policies.

<table>
<thead>
<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3.41</td>
<td>3% 17% 29% 19% 12%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Support to human capital development.

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<tr>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.35</td>
<td>1% 9% 23% 37% 30%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Support for creation of innovative enterprises.

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<thead>
<tr>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.84</td>
<td>13% 24% 37% 16% 10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>