



**ESTRATÉGIA DE INVESTIGAÇÃO E INOVAÇÃO PARA A
ESPECIALIZAÇÃO INTELIGENTE DA
REGIÃO AUTÓNOMA DOS AÇORES – RIS3 AÇORES**

ANEXO 1 – RELATÓRIO DE BENCHMARKING

**Estratégia de Investigação e Inovação para a
Especialização Inteligente da Região Autónoma
dos Açores – RIS3 AÇORES**

SPI Açores

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Anexo 1 – Relatório de Benchmarking

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1 INTRODUCTION

Benchmarking can be defined as the process of comparing one's process or results with others. In the case of the development of a smart specialization strategy, the benchmarking exercise allows for a region to identify its competitive advantages through comparisons with other regions, understand the international context and identify best practices to learn from.

Benchmarking can also provide an opportunity to identify relevant linkages and flows of goods, services and knowledge and reveal possible patterns of integration with partner regions, which is a very important feature in the case of less developed regions¹.

In fact, partnerships for the transfer of technology or the development of news channels of commercialization are particularly important for regions with the characteristics of the Azores, outermost less developed regions. Benchmarking is one of the ways of identifying not only potential channels, partners and sources of know-how but also best practices on the process of developing such partnerships.

Thus, the current benchmarking report focuses on the study of 5 regions that have developed what can be considered best practice regional innovation strategies and that share some common characteristics with the Azores. The following paragraphs present each region and the main factors that led to its choice.

- Martinique, like the Azores, is an insular outermost region. The island's economy is heavily dependent on tourism and related services. The sector employs approximately 11 000 people and accounts for about 9% of GDP. Martinique presents a high potential in agronomy and agrifood sectors. The island hosts one campus of the University of the French West Indies and Guiana. There is a research centre on the area of agriculture and agribusiness, which has some international recognition.
- Galicia is, like the Azores, a convergence region where agriculture, fishing and tourism are important economic sectors. The importance attributed to the maritime and ocean-related activities in the region was recognised with the funding of the Campus do Mar project by the Ministry of Education and the Ministry of Economy and Competitiveness of Spain. Campus do Mar is a project spearheaded by the University of Vigo and promoted by the three Galician universities, the Spanish Council of Scientific Research and the Spanish Institute of Oceanography. It therefore brings together socio-economic agents and marine researchers from the Galicia-Northern Portugal Euroregion, in order to harness the best possible potential and optimize the available resources;
- Balearic Islands are an archipelago which face some of the same issues as the Azores, such as dispersion (between islands). Tourism is the most important sector and the regional innovation strategy has been defined around this sector. The strategy has led to the development of six main clusters of companies that develop technologies related to tourism;
- Navarra was selected as an example of a region that was very successful in the development and implementation of regional innovation strategies. Navarra has developed a regional strategy, the Moderna Plan, recognised as a best practice in RIS3. This Plan follows from

¹ "Guide to RIS3", Plataforma S3, Maio 2012

previous regional innovation strategies, adopted in the region since 1999. The development and implementation of this set of plans is considered to be one of the reasons that led to the rapid progress of the region;

- Finally, the Scottish region Highlands and Islands was selected as an example of a convergence region of the European Union that, due to the policies and strategies implemented in the past years, succeeded in reaching the phasing-out status. It is particularly highlighted the relevant role assumed by the Highlands and Islands Enterprise programme on stimulating the regional innovation system.

The different case studies developed follow a similar structure, presenting:

- The economic context of the region under analysis;
- The research and development capacities;
- The key regional assets;
- Main regional challenges;
- The basis for the Smart Specialization Strategy (process, adopted strategies and policies, and projects developed).

The last chapter in this report presents some of the key lessons that can be learned from these studies and applied in the development of the RIS in the Azores.

2 MARTINIQUE



Martinique is one of the overseas departments of the French Republic, lying in the archipelago of the Antilles, in the Caribbean Sea about 450 km northeast of the coast of South America and about 700 km southeast of the Dominican Republic.

Martinique has a total area of about 1 100 square kilometres, of which 40 square kilometres is water and the rest land. This surface makes Martinique the 3rd largest island in The Lesser Antilles after Trinidad and Guadeloupe. In the European context, Martinique is the 3rd largest outermost regions of the European Union, after Madeira and the Canary Islands. It has a population of about 498 000 inhabitants which leads to a high population density of 452 inhabitants per km² (Table 1).

Table 1. General data on Martinique

Area	1 128 km ²
Coastline	350 km
Population	498 151 inhabitants (2011)
Density of population	452.9 inhabitants per km ²

Source: Worldstat Info

2.1 Economic context

The overview of Martinique's economy illustrates that its core activities are mostly in the services sector, followed by trade and construction (Figure 1).

Within the service sector, tourism is very important to the local economy. This can be seen at the level of registered companies in Martinique, out of which two thirds are related to hotels, restaurants and related services (Table 2).

On the other hand the inflation rate is quite high and the island remains mostly dependant on imports, as it can be seen in the table below.

In terms of GDP per capita related to PPS (purchasing power standard), in 2010 Martinique presented a value of 76, while France registered a value of 108, the EU27 average being of 100.²

² http://europa.eu/rapid/press-release_STAT-13-46_en.htm

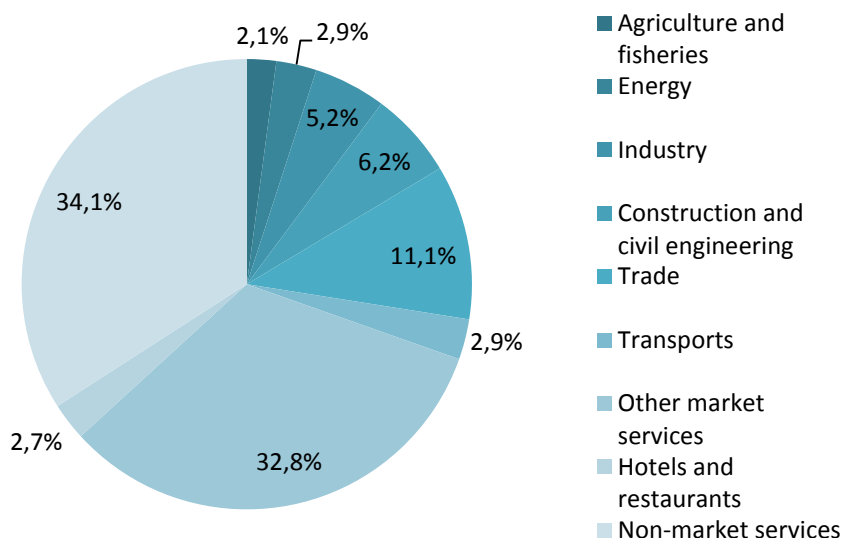


Figure 1: Distribution of added value per sector in 2007

Source: IEDOM, Annual Report 2011³

Table 2. Economic Indicators (2011)

Value of Consumer goods imported	2 709 million €	
Inflation Rate	2.0 %	
Registered Companies (Total)	3 910	
Registered Companies	Hotels, restaurants, transportation, commerce	1 135
	Services to companies	1 670
	Construction	473
	Industry	177
	Private services	455
GDP/capita (2010)	21 100 €	
GDP per capita 2010, PPS (2010)	18 700	

Source: IEDOM, Annual Report 2011

³ http://www.iedom.fr/IMG/pdf/ra2011_martinique_reduit_.pdf

2.2 Research and Development

The island has one campus of the University of the French West Indies and Guiana (Université des Antilles et de la Guyane) in Schœlche, while two others are in Guadeloupe and two in French Guiana. There is also the campus of the IUFM (University Institute for Teachers Training) in Fort-de-France and the medical campus (CHRU, a regional university hospital) of La Meynard in Le Lamentin.

Also, there is one business school, the International Business and Management School (EGC), managed by the Chamber of Commerce and Industry of Martinique, and one computer engineering school, SUPINFO, opened in November 2001.

The research on the island is based on 5 **thematic fields**:

- Agronomy and environment
- HSS - Humanities and social sciences
- Hazards and sustainable development
- Health
- Fishery.

In this context, PRAM (Pôle de Recherche Agronomique de la Martinique) the Agro-environmental Research Pole of Martinique, has international visibility in the area of agricultural research and development in Martinique, comprising three institutions:

- CIRAD (Centre de coopération internationale en recherche agronomique pour le développement)
- IRSTEA (Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture)
- UAG (Université des Antilles et de la Guyane)

In 2008 the Community of Agglomerations in Central Martinique (CACEM - La communauté d'agglomération du Centre de la Martinique) implemented an instrument, **Technopole**, that aims, through engaging and coordinating stakeholders, resources and infrastructures, at fostering innovative projects, animating and networking industrial and scientific competences, facilitating businesses and promoting the island potentials.

The innovation partners of Technopole range from governmental institutions, agencies for economic and environmental development, regional associations for the promotion and support of businesses and innovation, to research institutes, private companies and business networks, among others.

Through the collaboration of these partners, some guidelines to innovation were drafted that led to the choice of several **strategic sectors**:

- Agriculture, Fisheries and Agro-food
- Environment and Ecosystems
- Renewable energies
- Management of natural hazards
- Chemistry and materials
- Information and communication technologies
- Management of production, logistics
- Medical research

2.3 Key regional assets

France had a national initiative of diagnosing all of its regions and identifying each of their strengths and weaknesses that could be taken into account in developing regional strategies. The main strengths identified following this process are summarized below.⁴

Martinique presents a high potential in agronomy and agri-food sectors and an innovation potential in domains of excellence: biodiversity, agri-environment and agro-processing, health, natural hazards and fishery and aquaculture resources.

The **touristic potential** of the island is clearly undeniable and it remains an important source of foreign exchange although it may still lag behind other Antilles destinations due to lack of sufficient infrastructure or poor accommodation facilities. However, the sector employs approximately 11 000 people and accounts for about 9% of GDP. The island receives more than half a million tourists per year, mostly French tourists.⁵

In view of exploiting its tourism potential, Martinique has presented a contract of projects for the period 2012-2022. According to this contract, 400 projects could be developed counting on an investment of 810 031 000€, with a return on investments expected to reach 2 billion euros throughout the duration of the contract.

Moreover, Martinique offers a unique **diversity in terms of flora and fauna**, with approximately 1000 indigenous species out of which 40% being endemic to the Caribbean and 3% to Martinique. Also, 40% of its territory is covered by forests and its numerous rivers provide 90% of its water supplies.⁶

On the other hand, Martinique disposes of one of the best **health systems** in the region, setting a clear path for excellence in this area.

Furthermore, Martinique presents high potential in the **agriculture** sector. According to the agricultural census of 2010 in the overseas departments of France, Martinique had the highest land concentration and presented the highest percentage of permanent employment in the agriculture sector (more than 50%) compared to the other French territories.⁷ The sector is mainly marked by the harvesting of bananas and sugar cane. According to an article published in 2011 on the site of the Ministry of Agriculture, Martinique consecrates 15% of its agricultural land to harvesting sugar cane. 60% of its production is directed to distilleries.

Also, agriculture is the sector with most of the projects developed since 2007 through the European Agricultural Fund for Rural Development (more than 1800 projects)⁸. On the other hand, agriculture and agronomic research are the sectors perceived of high potential for innovation and are mentioned in the Smart Specialisation Strategy.

⁴ Summary of French Regions' Regional Innovation Strategies, Study overview 2012

⁵ <http://www.euromonitor.com/travel-and-tourism-in-martinique/report>

⁶ <http://www.lapropective.fr/dyn/francais/memoire/LipsorMartinique2025.pdf>

⁷ http://www.agreste.agriculture.gouv.fr/IMG/pdf_primeur270-2.pdf

⁸ <http://europe-martinique.com/domaines-dintervention/>

2.4 Main regional challenges

One of the problems that the island is confronting with is the **ageing population**. It is expected that in 2030 Martinique will be one of the five French departments with the largest percentage of old people in France. The island is facing the **emigration** of the young population, leaving an ageing population and an unbalanced social system behind.

Also, the **unemployment** rates are rocketing, reaching an alarming figure of 60% among the youth below 27 years old and 20% among the population aged 15-64.

According to the data in 2012, from an active population of 323 528, the share of inactive population reached 154 642, while the active population was 168 886.⁹

Another worth mentioning problem is the **low school enrolment rates** among the 15-29 youth that is the highest among the French regions. With the alarming emigration of graduates, Martinique faces a low level of qualified labour force (25% with a baccalaureate or higher qualification, compared with 36.5% on the mainland), while the labour market has little demand for qualifications and shows a low management-to-staff ratio.¹⁰

Due to its position, Martinique possesses insular constraints that is to say it has a **restricted internal market**, being highly dependent on the outside which triggers excessive supply and transport costs. Also, in this context, the coast of Martinique is difficult for the navigation of ships, making it a more closed economy.

In economic terms, Martinique relies mostly on the service sector with 79% of jobs that bring 72% of the added value, while the new and **underdeveloped industrial sector** counts for 7% of jobs and it is mostly focused on agri-food.

On the other hand, there is a significant weight of micro businesses (2/3) because SMEs are reluctant to innovate as they are often subsidiaries of companies with R&D centres on the mainland.

Although it has one university and a regional university hospital, there is **absence of academic courses in S&T** (Science & Technology) domains and low return rate of Martinique students educated outside Martinique.

Moreover, there is **limited research staff** (0.13% of the labour force), lower than the EU average (0.97%) and no participation in large-scale research projects.¹¹ Also, the island is confronting with a lack of coordination for engaging stakeholders in research projects as most of the research centres and decisions remain on continental France.

This is equally true for the **low entrepreneurial spirit** as main initiatives and strategies are taken on continental France, leaving little chance for the flourishing of the entrepreneurial culture in Martinique.

⁹ Stratégie régionale de l'innovation Martinique 2012 – La vision stratégique et le plan d'actions opérationnel

¹⁰ http://s3platform.irc.ec.europa.eu/c/document_library/get_file?uuid=e7f72d22-7031-4a33-9dde-a7f3d959708a&groupId=10157

¹¹ http://s3platform.irc.ec.europa.eu/c/document_library/get_file?uuid=e7f72d22-7031-4a33-9dde-a7f3d959708a&groupId=10157

2.5 Basis for the Smart Specialization Strategy

The **Regional Innovation Strategy (RIS)** is a reference tool for structuring public support for boosting innovation. In France, the RIS were driven by three ambitions:

- a strategic approach based on a shared diagnosis of the assets and weaknesses of the territory, as part of a dialogue with all the socio-economic partners as well as local and regional stakeholders;
- the desire to impose a broader vision of innovation in all its forms;
- the ambition to constantly improve coordination between national, local and European policies that foster innovation.

In Martinique, the RIS was developed by a committee composed of several institutions and partners among which the Regional Council, the Martinique Regional Delegation for Research and Technology (DRRT), the Regional Directorate for Industry, Research and Environment (DRIRE) TECHNOPOLE MARTINIQUE and the Martinique Association for the Promotion of Industry (AMPI).

The Regional Innovation Strategy for Martinique identified at least seven research centres on the following areas: health, sea, agricultural resources, energy, engineering, risks, biopole.

2.5.1 Process

Throughout the development of the strategy, partners worked in close dialogue and divided the process into three stages (Figure 2).

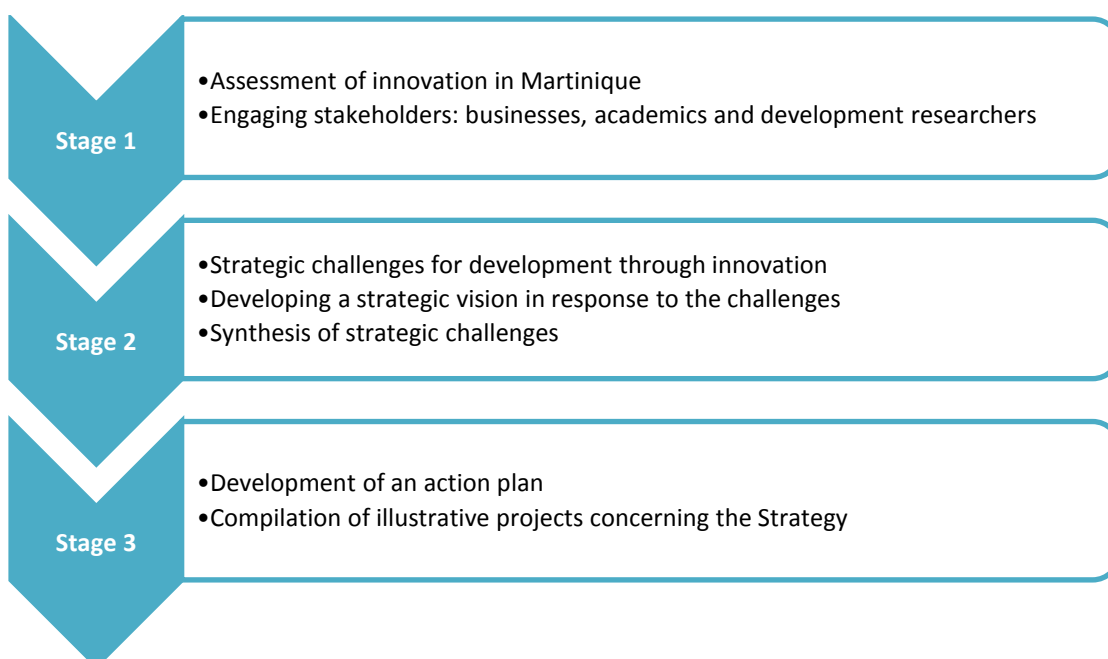


Figure 2. Stages of the strategy development.

The development of the Regional Innovation Strategy was conducted by the following **partners**:

- Regional Council - Delegated Direction for European Affairs and Cooperation- Service Europe
 - General Direction Competitiveness, Employment and Innovation
- Government Services – Regional Delegation for research and technologies
 - Regional Directorate for companies, competition, consumption, work and employment
- Technopole - Community of Agglomerations in Central Martinique
- General Council of Martinique – Cellule Europe
- Members of the Committee for the Regional Strategic Plan, namely the University of the Antilles and Guyana
- Pôle agro-alimentaire régional de la Martinique (The Regional Agrofood Center of Martinique)
- Centre Hospitalier Universitaire de Fort-de-France
- Voluntary members of the thematic working groups

2.5.2 *Strategies*

Following diagnosis of the region's potential, several **thematic priorities** of the Strategy were identified:

- Biodiversity, Agro-environment and Agro-processing
- HSS (Humanities and social sciences)
- Health
- Natural hazards
- Fishery and aquaculture resources

According to the Smart Specialisation Strategy for Martinique, high potential sectors, such as agro-processing, pharmaceuticals, services or tourism were chosen.¹²

Following the assessment of Martinique's innovation ecosystem, **five challenges** were identified:

- Building a culture of innovation
- Promoting innovation initiatives as competitiveness factors
- Building social innovation to overpass issues triggered by societal changes
- Further building the innovation ecosystem
- Implement an operational governance

The strategy for Martinique was developed as a response to these issues by offering an action plan. For each of these challenges several **action axes** were developed, as it can be seen below:

¹² Stratégie régionale de l'innovation Martinique 2012 – La vision stratégique et le plan d'actions opérationnel

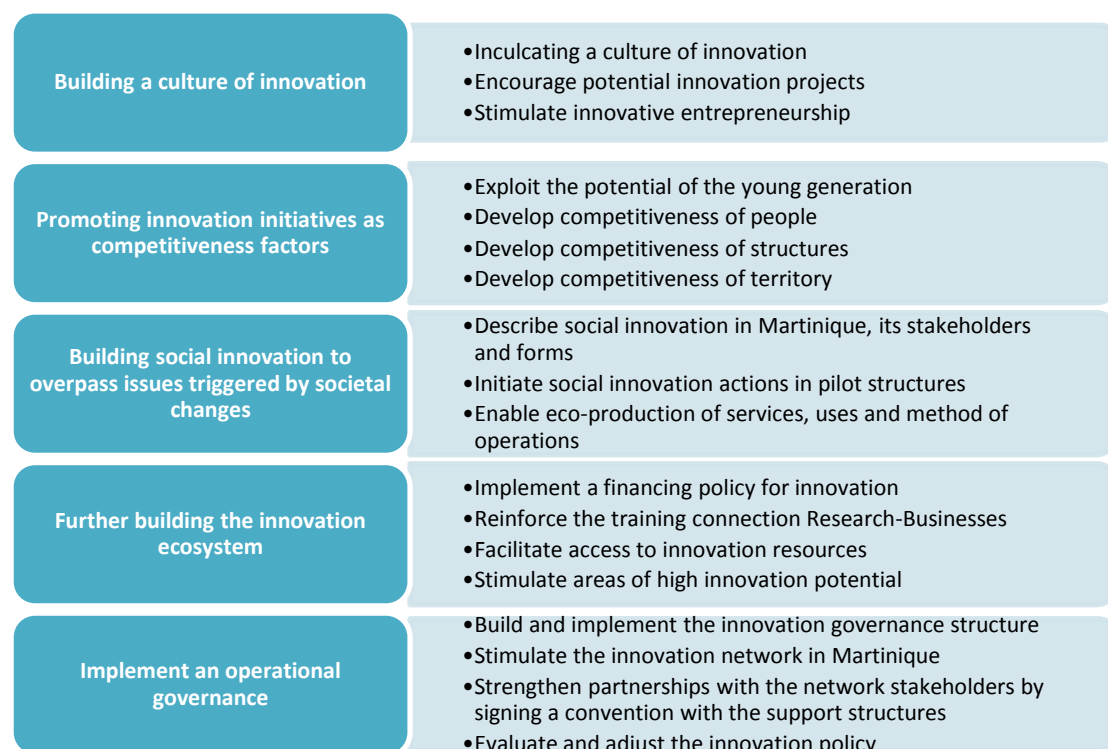


Figure 3: RIS axes.

Source: Stratégie régionale de l'innovation. La vision stratégique et le plan d'actions opérationnel

2.5.3 Project Examples

Given that its GDP/capita is less than 75% of the European average, Martinique is subject to receive increased funds for the next programme 2014-2020, in line with the cohesion policy.

To this end, Martinique has developed strategies and aims at developing the entrepreneurial innovative culture. Below, some of the projects conducted in Martinique in these sectors are illustrated as examples for enhancing its resources and strengths towards further development.

Table 3. Examples of projects developed in Martinique.

Project title	Project brief description
Development of arthurium-growing culture	The Regional Natural Park of Martinique (Parc Naturel Régional de la Martinique, in partnership with the Chamber of Agriculture and FREDON, the Regional Federation of Protection against Harmful Organisms (Fédération Régionale de Défense contre les Organismes Nuisibles de la Martinique), developed a project aiming at growing greenhouse arthuriums, stimulating this activity among young farmers and responding to local demand.

Project title	Project brief description
Growing herbs and medicinal plants	Led by Pôle Agroalimentaire régional de Martinique (PARM), this project aimed at developing and optimising conditions for the growth and harvest of herbs, spices and medicinal plants.
Development of an agro-environmental campus of the Caribbean	Involving CIRAD, IRD, IRSTEA, UAG, the project aims at stimulating and encouraging the research activities in the agro-environmental area by encouraging the European and regional cooperation in this sector through share of knowledge and best practice and exchange programmes.
Improvement of feed harvesting for sheep feeding	Led by Parc Naturel Régional de la Martinique, the aim of this project is to promote local feed types that could ensure a balanced diet for animals and improve the performance and productivity of farms.
Development of a Regional Centre of Aquaculture in Martinique	<p>This project aims at enabling the technology exchange, creating a pilot centre for the development of new fish species of fresh water and sea water, providing the island with a training centre for fish farmers.</p> <p>The project involved the Fish Department, IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer) or the ADEPAM (Association pour la Défense des Producteurs Aquacoles Martiniquais).</p>

Source: Stratégie régionale de l'innovation. La vision stratégique et le plan d'actions opérationnel

3 GALICIA



Galicia is an autonomous community in northwest Spain, having the official status of a nationality (*nacionalidade histórica* – territory whose inhabitants have a strong historically constituted sense of identity). It borders Portugal to the south, the Spanish autonomous communities of Castile and León and Asturias to the east, the Atlantic Ocean to the west, and the Bay of Biscay to the north.

Galicia covers a total area of 29,574 km² and has 1500 km of coast line, it is one of the Spanish regions with more cost line on the Atlantic Ocean. The region comprises four provinces which are A Coruña, Lugo, Ourense and Pontevedra and has a total population of 2.736.636 inhabitants, being the fifth largest Spanish autonomous community (Table 4). Its capital is Santiago de Compostela and important cities include: Vigo, A Coruña, Ourense, Lugo, Pontevedra and Ferrol.

Table 4. General data on Galicia

Area	29,574 km ²
Coastline	1500 km
Population	2.736.636 inhabitants
Density of population	94.1 people per km ² , mainly concentrated in the west coast

Source: EU Regional Innovation Monitor¹³

3.1 Economic context

The overview of Galicia's economy illustrates that its core activities are mostly in the services sector, followed by industry and agriculture. This is illustrated by the distribution of the working population below (Figure 4).

¹³ <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.regionalProfile&r=ES11#economy>

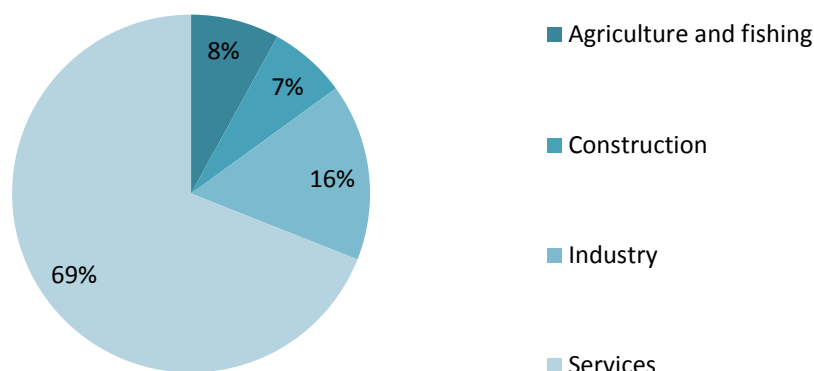


Figure 4: Distribution of working population according to economic activities.

Source: Galician Institute of Statistics.

The **GDP per capita** in Galicia in 2010 was €20,343, closer than previous year values to the average of EU27 and Spain, €23,600 and €23,063 respectively.¹⁴ In terms of GDP per capita related to PPS (purchasing power standard), in 2010 Galicia presented a value of 90, below the EU27 average of 100.¹⁵

This places Galicia among Europe's "transition regions" (between 75% and 90% of the EU average level of per capita GDP). It means that Galicia will, for the purposes of EU Cohesion Policy, pass from a "convergence region" (below 75% of the EU average) to a transition region in the new programming period, which begins in 2014 receiving less funding.¹⁶

3.2 Research and Development

In terms of Research, Development and Technological Innovation (RDTI), Galicia is the twelfth region according to the total investment in Spain with a ratio of total expenditures against GDP of 0.96%. Also, the share of Business Expenditure on R&D in GERD was of 47,72% over the period 2005-2010.¹⁴

In 2010, total investment in innovation in Galicia was €531,601, representing 4% of the Spanish total. This figure places Galicia as the seventh Spanish region in terms of innovation investments.

The core of innovation stands in the cooperation among small and medium enterprises that compose the Galician business environment and influence the economic and human resources distribution.

On the other hand, Galicia saw the development of a wide range of private non-profit organizations that work for the promotion of RDTI. There are centres for private research, technological platforms, clusters and other private societies. In terms of the activity they promote, there are specific

¹⁴ <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.regionalProfile&r=ES11#economy>

¹⁵ http://europa.eu/rapid/press-release_STAT-13-46_en.htm

¹⁶ OECD Report 2012

associations for enterprises, SMEs, or technological based companies and they all collaborate closely with public centres and offices.

University research is centered around three universities that also work closely with private and public organizations, and that account as the second sector with 39% of R&D effort in Galicia, in contrast to the 27% in Spain:

- University of Vigo (UVIGO)
- University of Santiago de Compostela (USC)
- University of A Coruña (UDC).

Also, Galicia offers two examples of project models, two Campuses of International Excellence: the Campus of Life promoted by the University of Santiago de Compostela, and the Campus of the Sea promoted by the University of Vigo.

In 2012, under the guidelines of the Galician Ministry for Economy and Industry, the Galician Innovation Agency was created for the governance of RTD.

The Agency is in charge of the drafting, management and coordination of the **Galician Research, Development and Technological Innovation Plan (PGIDIT)**. This plan is designed for the period 2011-2015 and focuses on the following priority targets:

- Agriculture and forestry
- Marine, energy and mining resources
- Health science
- Environmental technologies and sustainable development
- Technologies of materials and construction
- Information and communication technologies
- Industrial production and design
- Automobile sector
- Society and culture
- Tourism

3.3 Key regional assets

The beauty of the nature, the diversity of landscapes, the distinctive identity of the region and the celebrated Way of St. James, among others, attracted in 2011 almost 9.5 million visitors.

Galicia offers an extensive and varied range of hotels, hostels and guesthouses, positioning it as the fourth Spanish region in terms of the number of hotel establishments (behind the Balearic Islands, Andalusia and Catalonia), and the seventh in Spain in terms of the number of rooms (behind the aforementioned autonomous communities, the Canary Islands, Valencia and Madrid).¹⁷

¹⁷ <http://www.galicia.es/en/turismo>

Agriculture also presents high potential for the region. It is mainly oriented towards farming, more precisely **stock-raising**, mainly beef cattle and poultry farming. In this context, it is worth mentioning that Galicia is the country's leading producer of milk and eggs.

The region is highly forested (2/3 of the total surface is covered by forests) that consequently makes it an important wood and timber market and presents potential for developing markets of honey, mushrooms, medicinal plants, fruits and sub-products of forest, hunting and tourism.

Also, due to its wide coastline and numerous rivers (Galicia is also called the land of the thousand rivers) **fishing** is well developed. Given its approximately 1500 km of coastline and the sea, Galicia praises an important **maritime patrimony** that comprises fishing, including the canning industry, sea-farming, naval construction and the tourism related with the sea.

At the industry level, Galicia is an important centre of **transport equipment manufacture**, with the presence of shipyards in Vigo and Ferrol (Astano and Empresa Nacional Bazan in particular) and of the Citroen vehicle plant at Vigo.¹⁸

On the other hand, although Galicia mostly counts on the presence of small and medium companies, a few **multinational firms** such as Inditex (Zara), PSA (Peugeot) and Pescanova, account for a large share of the region's economic activity and exports.¹⁹

3.4 Main regional challenges

Among the region's inconveniences, its geographical location may be mentioned as it can set back Galicia as an isolated territory of the continent. Its location at the extreme western part of Europe, along with its rugged topography makes it relatively inaccessible, also if the **relatively poor infrastructure** is taken into account.

On the other hand, this is compensated by its strategic maritime importance, Galicia having four important ports. In this context, it is worth mentioning that the port of Vigo accounts as one of Europe's most important fishing ports.¹⁹

Another problem that the region is confronting with is the important **disparity between the coast and inland territories**, both in terms of demography and economic development. Most urban areas and economic centres are located along the coast line, in contrast with the rural, sparsely populated inland territories. As a consequence, infrastructure is relatively poor in the inland territories and there is little stimulus for investing throughout the territory given the lack of profitability.

Moreover, the region faces **demographic challenges**, given the low birth rate and the low immigration level. Consequently, Galicia faces an aging population, life expectancy being of 82 years, while approximately 40% of population is 50 or more years old. In terms of immigration, the region hosted only 2% of all foreign migrants in Spain between 1996 and 2005.

Furthermore, another challenge that the region is prone to face is the difficulty of securing **investment financing**. As Galicia will no longer be a convergence region, but a transition region, it will face a decline of EU funding from 2014 onwards. Consequently, it will have to find optimal solutions to put into value its resources for long-term self-sustainability.

¹⁸ http://circa.europa.eu/irc/dsis/regportraits/info/data/en/es11_eco.htm

¹⁹ http://www.oecd.org/gov/regional-policy/Galicia_edited.pdf

In terms of research and development, one of the most serious problems in Galicia is the **minimal presence of researchers in business organisations**. There is a profound inequality in the distribution of research personnel: 71% in the public sector and 29% in the private sector, compared to the EU balanced level of 50% for each.

3.5 Basis for the Smart Specialization Strategy

The development of the Regional innovation Strategy (RIS) for Galicia is mainly based on the Plan for Research, Innovation, and Growth for the period 2011-2015²⁰ developed under the coordination of the Regional Government of Galicia (Xunta de Galicia). The plan is intended to be a key tool for increasing the competitiveness of the territory, the well-being of the population and for propelling business growth.

A key element in the process of developing a RIS for Galicia was the creation of the Galician Innovation Agency, through which the Xunta de Galicia is coordinating the process. Under the diagnosis phase, the process is supported by the Innovation Observatory of Galicia, an operational instrument to support innovation in Galicia, and that together with the Innovation Agency stand for the monitoring and evaluation of innovation policies.

3.5.1 Process

The development of the Regional Innovation Strategy for Galicia follows the guidelines of the European Commission in **six stages**:

- Analysis of the regional context and of the innovation potential
- Creation of a strong and inclusive governance structure (Public - Private - Society)
- Generation of a shared vision on the future of the region
- Selection of a limited number of priority sectors for regional development
- Establishment of an appropriate framework for regional policies
- Integration of monitoring and evaluation mechanisms

For the elaboration of the strategy several working groups are set that will work together towards identifying the key priorities for the region's future.

The entities involved in the process are the following:

- Xunta de Galicia
- Universities
- Ministry of Economy and Competitiveness – Government of Spain (MINECO)
- Research and technology centres
- Clusters, Innovative Small and Medium Enterprises (SMEs)

²⁰ Plan I2C (Plan Galego de Investigación, Innovación e Crecemento 2011-2015) <http://plani2c.xunta.es/>

- FEGAMP (Federación Galega de Municipios e Provincias) - Galician Federation of Municipalities and Provinces
- CEG (Confederación de Empresarios de Galicia) - Galician Confederation of Entrepreneurs

3.5.2 Strategy

As the Strategy is based on the Galician Plan for Research, Development, and Innovation 2011-2015, the Plan will be further described below.

The Plan will develop the **set of objectives** listed below:

- Promote knowledge and provide incentives for the development of knowledge-based projects.
- Develop support programs for research groups, researchers, and technological centres in order to increase valuing results.
- Promote certification of new valuing stakeholders.
- Facilitate open and collaborative innovation dynamics locally as well as internationally.

The **measures** contemplated by the Plan are the following:

- Strengthen research within the Galician university environment, especially regarding its application to the business environment,
- Support the development of centres fostering research and innovation.
- Encourage R&D+i (Research, Development, Innovation) and cooperative business initiatives in companies.
- Develop R&D+i projects within the autonomic and local administrations in order to increase efficiency.
- Promote transfer projects among system stakeholders.

The Plan is organised in terms of Challenges, Strategic Axes, and Lines of Action associated with the different axes.

There are **five main challenges** covered by the new plan:

1. Recruiting, formation, and retention of talent
2. Reference and competitive research; this challenge aims at the following needs:
 - Guarantee that the universities and Public Research Organisms (PROs) have sufficient and enduring resources and that they are effectively employed.
 - Strengthen research excellence and achieve greater exposure of universities and PROs toward the exterior as well as increase their attractiveness on an international scale.
 - Provide the necessary services so that research activity in the public R&D system develops by means of efficient procedures from the financial as well as the operative points of view.

The challenge is supported by two strategic axes:

- the consolidation of research groups
 - the development of an integral system of support for research.
3. Innovation and value; this challenge aims at the following needs:
 - Multiply the knowledge valuing capacity developed in universities and research centres.
 - Convert innovation into the principal mechanism of competitiveness of Galician businesses from the perspectives of potential, dimension, and differentiation of each one.
 4. Business growth
 5. Develop a change of model in order to achieve a more competitive system beyond 2013

To meet these challenges, **ten strategic axes** were defined, each with its associated lines of actions. These axes are presented below.

For each of these challenges several **action axes** were developed, as it can be seen below (Table 5).

Table 5. Galicia's RIS axes.

Axis 1. Management of talent	This axis aims at bringing the business world and the research world closer together, increase mobility and internationalization of talent and make the R&D+i system more attractive. Several factors were considered to achieve this end: the training of scientists, organisational content management, and the promotion of the entrepreneurial spirit, as well as planning the orientations and strategies regarding the training and stability of researchers, developing policies of movement.
Axis 2. The consolidation of groups of reference	The objectives of this axis are to create a competitive Galician R&D+i system by supporting the creation of research groups, to consolidate research of excellence and improve system management capacities.
Axis 3. An integral system of support for research	This axis has in view a model of support for research, organised as a professional and unified integral system. To this end, several fundamental instruments are defined to guarantee necessary support: the Offices of the Transfer of Research Results (OTRR) and General Services for the Support of Research.
Axis 4: Valuing of knowledge	Under this axis the principal activities of valuing are defined: technology transfer, the development of spin-offs connected to research groups, the marketing of patent-protected knowledge, and all activities that are able to add a business model to a product or service proposal.

<p>Axis 5. Innovation as an engine of growth</p>	<p>The set of the lines of action of this axis are included in the following programmes: the General Programme of Access to Innovation, the General Programme of Promotion of Collaborative Models of Innovation, and the General Programme of Growth.</p>
<p>Axis 6. Internationalisation of knowledge and innovation processes</p>	<p>This axis has in view the intensification of internationalization with more research projects in contexts such as the European Research Space (ERS) and more innovative business practices with global agents.</p>
<p>Axis 7. A model of innovation in administrations</p>	<p>This axis has in view the generation of innovation models in administrations as a mechanism to guarantee competence in public service. The objective is to launch models of integral innovation in administrations that systematise innovation and incorporate relevant management practices.</p>
<p>Axis 8. Sector programmes</p>	<p>Sector programmes coincide with the key areas indicated by the 7th Framework Programme of the European Union within their Cooperation programme which receives the greater part of the budget.</p>
<p>Axis 9. Singular projects</p>	<p>The key areas to the Galician economy correspond to the principal fields of knowledge and technology and that can help in overcoming the challenges the region is facing.</p>
<p>Axis 10. Diffusion and dissemination</p>	<p>The Plan views diffusion as a transversal function with the objectives to promote the valuing of research and innovation, to foster a culture of efficient innovation and to establish continuous activities for social sensitivity regarding the importance of research, science, technology, development and innovation.</p>

Source: The Galician Plan for Research, Innovation and Growth 2011-2015.

3.5.3 Project Examples

This section briefly illustrates some project examples in two sectors with high potential in Galicia: the health sector and the marine and maritime sector.

First, it is worth mentioning two main projects in the health sector that try to deliver solution to the challenge the region is facing, the ageing population.

The H2050 and InnovaSaúde are two **Health Care Innovation Plans** until the year 2015, co-funded by the European Regional Development Fund in the framework of the R&D Operational Plan, the Technology Fund 2007-2013. Their mission is to build the future model of the Galician Health System.

The **H2050** project comprises 23 subprojects and has in view the hospital of the future: efficient, green (including programs of efficient use of water and energy and of efficient management of waste), safe and sustainable. The hospital of the future is an open meeting point, an innovation space where actors converge around users.

The **InnovaSaúde** project comprises 14 subprojects and aims at delivering innovative solutions that will fulfil healthcare need. It has in view developing new offshore tools (telehealth, telemonitoring, websites for patients etc.) in order to avoid unnecessary admissions and overwhelming of hospital services and at the same time favour a fast communication and access and implement a safe environment for professionals.

In the marine and maritime research sector, it is relevant to mention the **Campus do Mar** project. The Campus do Mar project is a project funded by the Ministry of Education in the framework of the International Campus of Excellence programme and the Ministry of Economy and Competitiveness in the framework of the National R&D&I Plan.

It was promoted by the Galician universities, the Spanish Council of Scientific Research (CSIC) and the Spanish Institute of Oceanography (IEO) and it aims at training the best professionals and researchers in the field of Marine Science with the best tools for competing on an international scale. Sea is the driving force that brings together cross-border stakeholders (Galicia and Northern Portugal regions). Given its success rate, the Campus do Mar project was reprogrammed and extended from 2013 to 2015.

4 BALEARIC ISLANDS



The Balearic Islands is a Spanish archipelago comprised of four main islands, namely Mallorca, Menorca, Ibiza and Formentera and several islets. The archipelago lies in the western Mediterranean Sea, near the eastern coast of the Iberian Peninsula.

The whole archipelago has a total area of 4,984 km² and a population of 1,001,062 inhabitants representing 2.24% of Spain. This triggers a population density of 200 inhabitants/km², which is significantly higher than the national average of 88 habitants/km². The population is mainly concentrated in the capital, Palma, one of the most populous cities, with 375,048 inhabitants. Also, the islands is the region of the state counting the largest share of foreign residents (20.5% of total population).²¹

Table 6. General data on Balearic Islands

Area	4,984 km ²
Coastline	1 000 km
Population	1,001,062 inhabitants
Density of population	200 inhabitants/km ²

Source: EU Regional Innovation Monitor²²

4.1 Economic context

The overview of the economy in the Balearic Islands illustrates that the main activities are conducted in the service sector that represents 81% of the total Gross Value Added. Within the services, tourism is the most relevant sub-sector.

The service sector is followed-up by the construction sector, the industrial sector and the primary sector. The distribution of the economic activities according to the gross value added (GVA) is illustrated in Figure 5 below.

²¹ <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.regionalProfile&r=ES53#economy>

²² <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.baseline&r=ES53&CFID=729881&CFTOKEN=49555118>

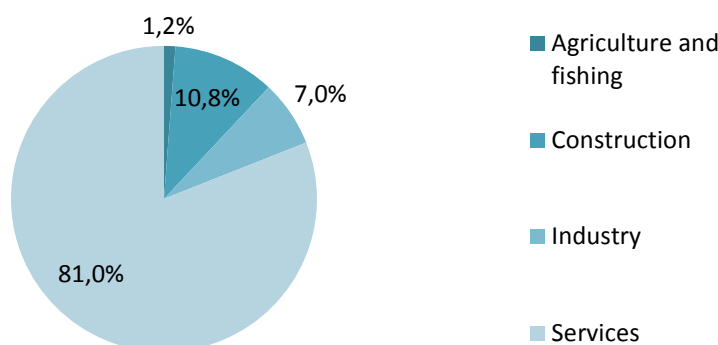


Figure 5: Distribution of economic activities of Balearic Islands (Gross Value Added).

Source: EU Regional Innovation Monitor²³

Apart from the significant importance of the tourism sector, the Balearic Islands count on specialized traditional industries, the most important ones being: footwear and furniture, shoes and costume jewellery and fashion.

The nominal GDP (in thousands of euros) of the Balearic Island is 26,767,227 representing 2.5% of the national GDP. The GDP per capita in 2012 – of 24,393 euros - is above the average in Spain and among the highest Spanish autonomous communities (National Institute of Statistics, Ibestat, General Directorate of Economics and Statistics).

4.2 Research and Development

The region comprises the Technological Innovation Park of The Balearic Islands, commonly named Parc Bit, a science and technology park that gathers professionals, companies and institutions with a view of collaborating on improving the quality of life and environment.

In terms of universities, the Balearic Islands count on the presence of the University of the Balearic Islands (UIB) and the IMEDEA Research Centre (Mediterranean Institute for Advanced Studies).

Another important regional actor is the Institute of Business Innovation (IDI), a public institution that aims at boosting business development in the region.

However, in terms of Research and Development (R&D) the Balearic Islands do not rank very high due to the lack of resources (investment in R&D activities represents 0.26% of total GDP in the region) and a low private participation RTDI profile, the concentration of R&D activity being mainly in the public sector.

²³ <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.regionalProfile&r=ES53#economy>

4.3 Key regional assets

Given its location in the Mediterranean Sea, the Balearic Islands praise rich natural and cultural resources that have enabled them to develop strong policies centred on tourism. As a consequence, the region now possesses the know-how and the experience to attract tourists.

According to the Ministry of Economy and Competitiveness, the Balearic Islands are the second most popular tourism destination in Spain, with over 10.4 million international tourists in 2012.

The warm climate and the diversity of landscapes have also contributed to attracting tourists, so have the protected nature areas and the new international recognized sites. The islands offer about 1,000 kilometres of coastline, around 400 beaches, five nature reserves and one UNESCO designated Biosphere Reserve island, Minorca, the unique Tramuntana Mountains or the Ibiza World Heritage Site, among others. Also, the capital, Palma, has one the best conserved historic centres in Europe, thus contributing to the cultural heritage of the islands.

On the other hand, the relative proximity to the continent serves as an incentive for tourists to fly over for holidays or just for the weekend. Furthermore, there are excellent connections between the main islands of the archipelago, enabling the tourists to visit them all. Also, the archipelago has a strategic location being at the crossroads between East and West.

Being at the crossroads of different cultures has enabled the islands to easily embrace and integrate multiculturalism. In fact, the archipelago is among Spain's leading autonomous communities in terms of the knowledge and oral command of foreign languages. This has facilitated and encouraged the implementation of international businesses.

Furthermore, the Islands praise a dynamic economic spirit due to the high density of companies. According to the Ministry of Economy and Competitiveness in 2012 the Balearic Islands was the third Spanish region with the highest density of businesses, with 76.3 companies per 1,000 inhabitants, and a total of 85,372 companies (excluding public and agricultural companies). 77% of these companies are in the service sector, while 96.0% of the companies are microenterprises with less than 10 workers.²⁴

On the other hand, the Balearic Islands are pioneers in the implementation of technologies in the healthcare system, being a benchmark in both Spain and Europe for information system projects such as the Citizen Health History and the Electronic Prescription.

²⁴ Balearic Islands Business and Investment Guide, Ministry of Economy and Competitiveness, May 2013

4.4 Main regional challenges

The main economic activity of the Islands, tourism, may as well be regarded as problematic as it makes the region highly dependent on it. That means the region may only rely on seasonal revenues that could also be subject to global or regional trends. Also, that entails uneven demand on infrastructure, with peaks during the high season and declines during off-season, triggering a volatility and instability of prices.

Also, there is a clear prevalence of the coastline tourism, the so called sun-and-sand tourism model, leaving little opportunity for the development of the inland tourism.

Another weakness identified in the Balearic Islands is the considerable urban pressure put on the coastline as a result of increased tourist activity, having an impact on the environment. The Islands present a tourism model that at times is aggressive with the region and its resources.

On the other hand, another weakness that the region has been facing is the low intensity of research activities carried out. According to the information available in 2004 the research intensity in Spain varied from 1.79% in the Community of Navarre to 0.26% in the Balearic Islands, with the Spanish average at 1.07%²⁵. Although considerable improvements have been registered since then, the region is still trying to enhance the research and innovation sector.

4.5 Basis for the Smart Specialization Strategy

The Regional Innovation Strategy of the Balearic Islands is focused on tourism and revolves around tourism-related activities. This is because tourism is the main driver of the archipelago's economy and has strong linkages to other productive and services sectors.

4.5.1 Process

The Balearic Regional Innovation system dates back in the late 1980s when the first idea of the Balearic Islands Innovation Technology (BIT) in the framework of the Regional Development Strategy emerged as to counteract the crisis affecting tourism.

In 1997 the Science Act of the Government of the Balearic Islands was adopted as an institutional framework of the innovation system and in 1998 the European Commission approved the Regional Innovation and Technology Transfer Strategies (RITTS). These projects set out the basic R&D+I policies towards supporting innovation in tourism-related activities.

In 1999 the Government of the Balearic Islands created the General Head Office for R&D+I to be in charge of defining and implementing related policies in the region.

The defined objectives of the Balearic RITTS remain valid until today and include, among others:

- Promote innovation with a view to improve business competitiveness, social welfare and sustainable development;
- Promote scientific and technological culture and innovative spirit on all levels: among citizens, businesses and institutions.

²⁵ Study on the Strengths, Weaknesses, Opportunities and Threats for Spanish Regions within the Framework of the Conclusions of the Lisbon and Gothenburg European Council, September 2006

- Promote new ways of financing innovation.
- Ensure participation and involvement of different stakeholders in defining and implementing the strategy and measures.

The RITSS has laid the basis for the successive strategies and plans, out of which the last one will be further on analysed in more detail:

- I R&D Plan (2001-2004);
- I Innovation Plan (2001-2004);
- I Innovation Action INNOBAL XXI (2002-2003);
- II Plan for Science, Technology and Innovation (2005-2008);
- II Innovation Actions SAITUR (2005-2008);
- III Plan for Science, Technology and Innovation (2009-2012).

SAITUR consolidated the smart specialisation on tourism and supported natural clusters in tourism – related sectors in the region and focused on the launch of a R&D center of international reference in tourism (CIDTUR). It thus established a system of clusters operating through intercluster collaboration and enhancing innovation and entrepreneurial culture around the tourism cluster.

The last Plan for Science, Technology and Innovation (2009-2012) focuses on smart specialization and technological expertise on tourism and development of natural clusters in tourism-related sectors.

4.5.2 Strategies

The Science, Technology and Innovation Plan of the Balearic Islands is managed by the General Directorate for Research, Technological Development and Innovation (DGRDI) of the Ministry of Innovation, Internal Affairs & Justice.

In terms of the beneficiaries of the Plan, the Plan comes first of all to the benefit of the society as a whole. Then, it is of interest to all research units and centres, technology centres, units for transfer of knowledge, to the technology-based industry sector and all businesses based in the region and the structures and entities of the SCIIB Government (Science & Innovation System of the Balearic Islands). Thus, the DGRDI manages a specialized, connected regional innovation system that engages research centres, companies and clusters, centres of innovation and technology, as can be seen in Figure 6 below.



Figure 6: Innovation System of the Balearic Islands

Source: Science, Technology and Innovation Plan, 2009-2012

The Plan sets out the following **four objectives**:

1. To gain strategic competitiveness in local and international socio-economical environments;
2. To improve the productivity in search for excellence and competitiveness to generate knowledge that could impact in innovation;
3. To increase the skills and commitments of the science & innovation system of the Balearic Islands (SISB) agents in view of productive exchanges;
4. To obtain local and global visibility of the achievements in science & innovation and to promote a scientific and innovation culture.

The Plan is divided into **5 axes** (Table 7).

Table 7. Axes in the Science, Technology and Innovation Plan of the Balearic Islands.

<p>Axis 1. Talent Management</p>	<p>This axis relates to the improvement of human resources, to the strengthening of the research capacity and its main objectives include:</p> <ul style="list-style-type: none"> ▪ Increase the number of people engaged into research in the region; ▪ Train researchers and support research; ▪ Incorporate researchers of excellence; ▪ Attract talented entrepreneurs and technicians. <p>The measures to achieve these intended objectives include granting of fellowships, grants and post-doc contracts, as well as management training.</p>
<p>Axis 2. Research</p>	<p>This axis refers to increasing spending on R&D groups seeking excellence, competitiveness and productivity. It sets the following objectives:</p> <ul style="list-style-type: none"> ▪ Increase expenditure ratio of R&D/GDP; ▪ Strengthen infrastructure and scientific and technological equipment; ▪ Encourage the search for excellence and competitiveness and the development of new groups; ▪ Establish new mechanisms for research assessments.
<p>Axis 3. Innovation</p>	<p>This axis refers to the development and consolidation of business incubators and encourages the development of cluster policies. It also includes support programmes addressed to companies to develop innovation projects.</p> <p>The clusters and innovation poles promoted by the public sector in the Balearic Islands include:</p> <ul style="list-style-type: none"> ▪ TurisTec (Innovative Business Partnership formally constituted) ▪ Nautical pole ▪ Aviation pole ▪ Cluster of tourism ▪ Cluster of the audiovisual industry ▪ Cluster for the management of musical activity (Ibiza Music Tour) ▪ Biotechnology cluster Bio-IB
<p>Axis 4. Transfer of knowledge</p>	<p>This axis emphasizes the importance of transfer of knowledge between institutions and companies.</p>

Axis 5. Governance and Social Capital	<p>This axis has in view that research and innovation systems are well managed and effective. It is divided into five complementary policies:</p> <ul style="list-style-type: none">▪ International representation▪ Professionalism and commitment of the SCIIB agents▪ Methods of reporting and evaluation▪ Institutional architecture of the SCIIB▪ Social capital, referring to the complex system of interactions between stakeholders and institutions.
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Source: Science, Technology and Innovation Plan, 2009-2012

Furthermore, the development of R&D+ I policies contributed to the enhancement of technology domains, all around tourism as main economic activity of the Islands. This is illustrated in Figure 7.

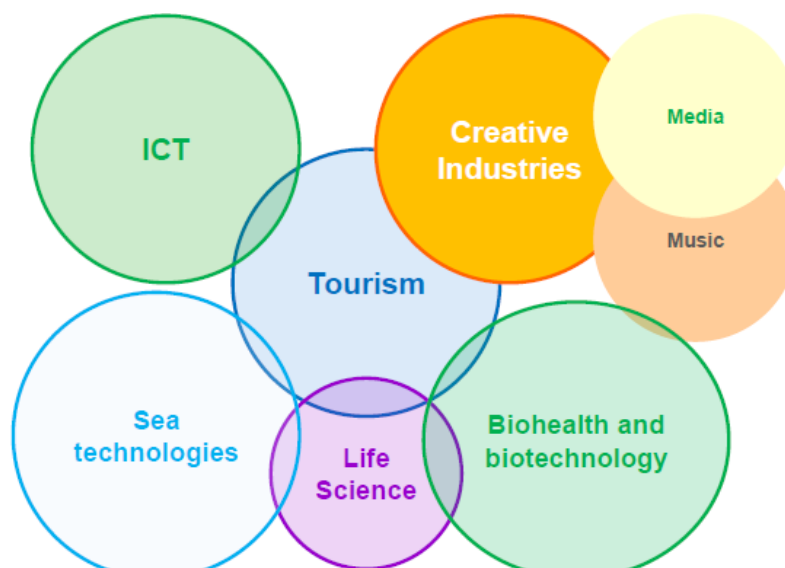


Figure 7: Representation of technology domains in the Balearic Islands

Source: Smart Specialization in Balearic Islands, Infyde ID

These domains have further on led to the development of six main clusters of companies that develop technologies related to tourism. These clusters, as well as their composition and details, are illustrated in Figure 8 below.

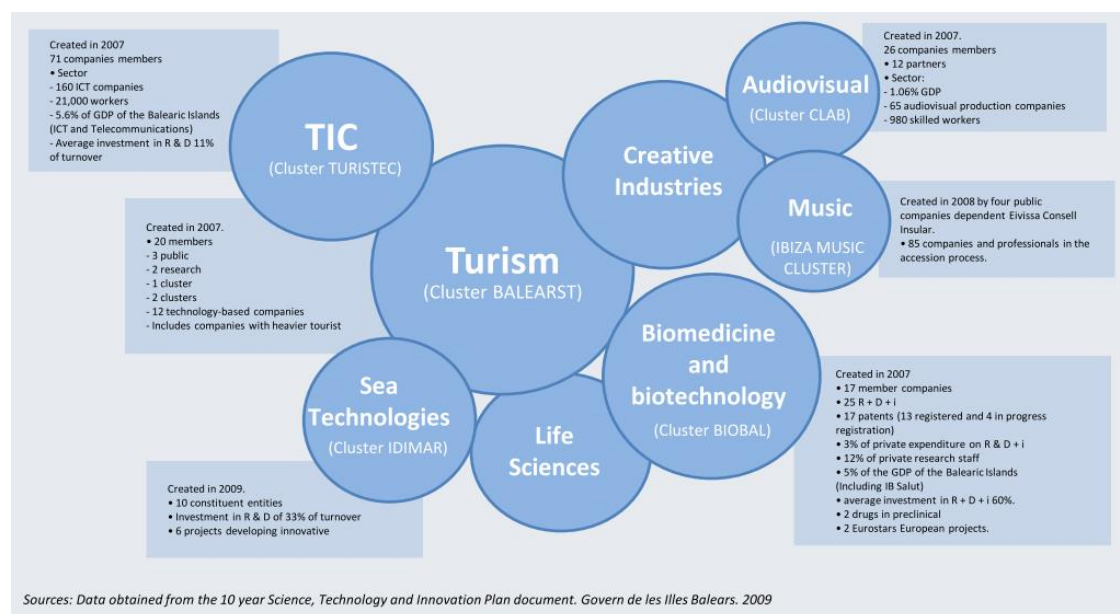


Figure 8: Representation of Clusters in the Balearic Islands

Source: Smart Specialization in Balearic Islands, Infyde ID

Balearst is the **Technological innovation cluster** in tourism in the Balearic Islands. It was created in 2007 and aims at helping tourism sector companies to develop cooperative relations and partnerships with both their chain of value and other types of institutions within the regional science and technology system.

TurisTEC is the **Cluster of information technology and communication companies** in the Balearic Islands. It was created in 2007 and aims at increasing, promoting and strengthening the ICT-Tourism sector in the Balearic Islands.

CLAB Media is the **Audiovisual Cluster** in the Balearic Islands and refers to the growing audiovisual advertising industry of the region, as Mallorca is a popular advertising and film set. The Cluster was created in 2008 and aims at developing technological and innovative actions for audiovisual production and services, while targeting 4 sectors: television, advertising, the film and radio sector, and the phonographic sector.

Ibiza Music Cluster regroups **music innovation enterprises** in the Balearic Islands. It was created in 2008 and aims at positioning the island of Ibiza as the top international destination for music innovation.

BIOIBAL is the **Biohealth and biotechnology cluster** in the Balearic Islands. It was created in 2007 and aims at promoting and improving the biotechnology sector of the region, as its areas of application range from human and animal health, the environment, the food and agricultural industry and bioprocesses.

IDIMAR is the **Cluster of the sea-faring sectors** in the Balearic Islands. It was created in 2009 and aims at the development, promotion and distribution of technological innovation within the maritime sector.

As it can be observed, tourism is not only the main driver of the Islands' economy, but also the catalyst for developing new technologies.

4.5.3 *Project Examples*

An example of project conducted in the framework of the innovation action is the promotion of web-based booking systems. The Balearic Foundation for Technology IBIT developed a new reservation system software, *AvantHotel* that allows an intelligent online management, booking and information offer of accommodation places and leisure activities and services. This system also enabled small hotels and pensions to compete with the larger hotel groups and it allowed the integration of a new technology towards the enhancement of the tourism sector.

Another example of project is the Toureg project coordinated by the Directorate General for Research, Technological Development and Innovation of the Government of the Balearic Islands that aims at establishing a platform for developing a competitive tourism industry based on the generation and application of knowledge revolving around a new international research-driven cluster in the tourism industry.

5 NAVARRA



Navarra is an autonomous community of northern Spain, officially known as the Comunidad Foral de Navarra (“Regional Community of Navarra”). It borders France to the west (with which it shares a 163 kilometre stretch of frontier), the Community of Aragon to the east, the communities of Aragon and La Rioja to the south, and the Basque Country to the northwest.

Navarra covers a total land area of 10,421 km² and has a population of 643,713 inhabitants that represent a 1.36% of the total Spanish population (Table 8).²⁶ Its capital and main important city is Pamplona.

Table 8. General data on Navarra

Area	10,421 km ²
Population	643,713 inhabitants
Density of population	61 inhabitants/km ²

Source: EU Regional Innovation Monitor²⁶

5.1 Economic context

The overview of Navarra's economy illustrates that its core activities are mostly in the services sector, followed by industry and construction. This is illustrated by the distribution of the working population and the contribution to GDP of each economic activity (Figure 9).

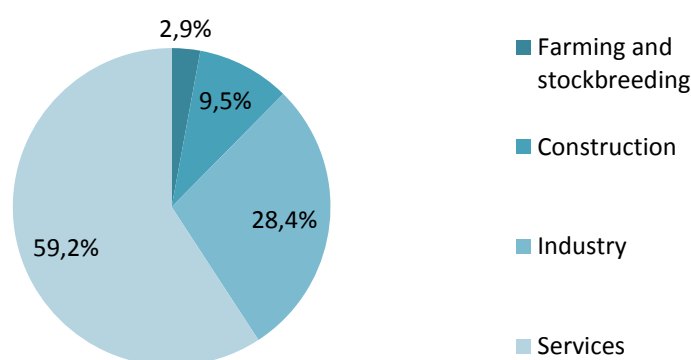


Figure 9: Distribution of Gross Domestic Product according to economic activities

Source: EU Regional Innovation Monitor²⁶

²⁶ <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.regionalProfile&r=ES22#economy>

The region has undergone important changes in the last 50 years, shifting from an agriculture-based economy to a dynamic and modern one. Consequently, Navarra is now one of the richest regions of the European Union, with a gross domestic product per capita of 28 900 EUR. In terms of GDP per capita related to PPS (purchasing power standard), in 2010 Navarra presented a value of 126, higher than the EU27 average of 100.²⁷

The industry comprises the presence of small and medium-sized companies and productive plants belonging to multinational corporations. Nowadays, more than 120 multinational from some 20 countries and belonging to different sectors have productive plants in Navarra. The main sectors contributing to the region's Gross Valued Added (GAV) are car manufacturing, machinery and equipment and agro-food industry.²⁸

5.2 Research and Development

In terms of Research and Development (R&D) Navarra is among the first Spanish regions receiving high budget, being one of the most innovative regions in Europe.

In 2010 the number of persons employed in R&D activities in full-time represented 19.3 per thousand of the employed population.

The Government of Navarra has been continuously defining and implementing successive regional innovation policies. In 1982 a first regional regulatory framework to promote technological innovation was adopted. This framework was gradually increased and updated to further lay the basis of the regional innovation policy in Navarra.

In 1999 the first multi-annual Regional Technology and Innovation Plan of Navarra for the period 2000-2003 was adopted, followed by the second multi-annual Regional Technology and Innovation Plan designed for the period 2004-2007. The third Regional Technology and Innovation Plan was in force for the period 2008-2011 and is followed by the Fourth Technology Plan that also serves as a base for the Regional Strategy for Innovation (RIS) for the period 2012-2015.

Along the years leading to the flourishing of Navarra as an important innovation region, several significant events are worth to be mentioned here:

- The creation of the RETECNA network and the network of Innovative Technology Based Companies. RETECNA Network comprises more than 700 of technology stakeholders and organisations with the view of promoting synergies and developing joint projects;
- The creation of the Innovation Park of Navarra;
- The mobilisation of different stakeholders in different clusters, such as Agribusiness, Logistics, Biotechnology, Automotive, ICT (Information & Communication Technology), Solar Energy, Environment or Tourism;
- The creation of two new associations, such as ATANA (Association of Navarra's ICT Companies) and ANEC (Navarra Association of Consulting Businesses);

²⁷ http://europa.eu/rapid/press-release_STAT-13-46_en.htm

²⁸ Regional Innovation Report (Region of Navarra), 2011

- The significant increase of participation in projects and a general favourable perception of Research & Development and Innovation.

The main innovation policy trends of Navarra are promoted and implemented by the Directorate of Enterprise and Innovation, from the Regional Ministry of Rural Development, Industry, Employment and Environment of Navarra.

The Directorate of Enterprise and Innovation is supported by CEIN (Navarrian European Business Innovation Centre) and Fundación Moderna.

CEIN helps small and medium sized enterprises and entrepreneurs in Navarra to develop and diversify their businesses, while also encouraging innovation. 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.

Fundación Moderna is a new public-private collaboration entity which stimulates and coordinates the activity of clusters, creates connections and synergies in the view of Navarra's knowledge management, manages the value transfers and acts as a laboratory of ideas, guaranteeing an innovative vision. Also, the foundation is in charge of continuing and coordinating the work carried out by the parties that created the Moderna Plan - a new model of economic development for Navarra in the medium and long term- and the Navarra Foundation for Diversification (FND).²⁹

In terms of universities, Navarra has public institutions such as the Public University of Navarra or the National University for Distance Learning, in Pamplona and Tudela, and private centres like the Navarra University, an Opus Dei corporate work. Navarra's university students amount to approximately 28,000.³⁰

In this regard, it is worth mentioning that in 2010, the joint project by the Public University of Navarra and other 3 universities named "Campus Iberus" has been granted by the Spanish Government as an "International Excellence Campus".

Also, there are 12 Technology Centres (TCs) operating in Navarra that conduct research in the following fields: renewable energy, automotive industry, nanotechnology, medical industry, new materials development, agrifood etc.

²⁹<http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.organisation&n=15894>

³⁰http://www.Navarra.es/home_en/Navarra/Asi+es+Navarra/Economia+y+servicios/Educacion+e+investigacion.htm

5.3 Key regional assets

Given its geographical location, Navarra stands at the confluence of three areas - the Alpine, the Atlantic, and the Mediterranean – that offers a **rich natural heritage**. This heritage takes the form of high biological diversity, perceived at the level of nine main ecosystems: the alpine system, the fluvial areas and humid zones, the forests, the Mediterranean shrublands, the pasturelands and heathlands, the rocky places, the steppes, the limestone areas, and the salt marshes and closed basins.³¹

Therefore, one of the main characteristics of Navarra's natural heritage are forest conservation (64% of the region's surface area is forests), and the abundance of water resources.

On the other hand, Navarra has important potential in the **renewable energy sector**: Consequently, the sector currently supplies about 65% of the consumed electrical energy of Navarra.³² Also, the Spanish national research centre for renewable energies, CENER (Centro Nacional de Energías Renovables-Spanish National Centre of Renewable Energies) is located in Navarra with more than 200 researchers and modern technology infrastructures.

The **food-processing sector** is one of the leading industrial sub-sectors in Navarra, contributing to 16% of regional industrial GDP. The Spanish national centre for food processing technology and safety CNTA (Centro Nacional de Tecnología y Seguridad Alimentaria) is located in Navarra.

Also, the **health service sector** is highly regarded. The regional public-private hospitals offer high standard levels and innovative techniques, while the universities praise good reputation within Spain and abroad. On the other hand, a private research centre was created (CIMA, Centro de Investigación Médica Aplicada – Medical Applied Research Centre) to serve as a base of the biotechnology emerging sector.

5.4 Main regional challenges

Population density in Navarra is below the national average and presenting uneven distribution. Pamplona and its metropolitan area account for half the region population. The density here is of around 320 per km² while in the Pyrenean areas it is of 7 per km². This implies a risk of marginalisation and less possibilities of development for rural communities.

Also, the region faces the problem of **aging population**, mainly perceived in marginalised rural areas where about 25% of the population is over 65.

Tourism in Navarra is limited, although it has seen an increase. This sector has received little attention mainly because of the difficult nature of access to many areas. However, it is a sector of potential importance mainly because Navarra offers several attractions as the Santiago Way, the Pyrenees, the impressive biodiversity and mosaic of landscapes and the proximity of areas which enjoy a high standard of living.³³

³¹ http://www.Navarra.es/home_en/Navarra/Asi+es+Navarra/Naturaleza/Biodiversidad.htm

³² Regional Innovation Report (Region of Navarra), 2011

³³ http://potNavarra.nasursa.es/ETN/ETN_INGL_APROBADO.pdf

5.5 Basis for the Smart Specialization Strategy

In 2011 Navarra developed the 4th Technology Plan 2012-2015 that serves as its Regional Innovation Strategy.

The Plan is based on the previous Technology Plans and takes into account the economic evolution in the past years. Also, it is fundamentally based on the Moderna Plan (Modelo de Desarrollo de Navarra – Navarra Economic Development Model) that set targets until 2030, but also milestones for 2015.

The Technological Plan is in line with the regional, national and international plans, namely with:

- The European Union 2020 Strategy
- The National Innovation Strategy (E2I)
- The Regional Plan – Moderna Plan

The Moderna Plan³⁴ is a strategic plan that promotes change in the economic development model of Navarra, moving towards a knowledge-based economy that focuses on people. The Moderna plan constitutes a New Model Plan for Economic Development of Navarra in the horizon 2030, although it has intermediate milestones in 2015. It has been promoted and approved by leading public and private stakeholders in Navarra, with contributions from academics and society.

5.5.1 Process

The plan is based on the previous three plans, on their evaluation, both in terms of accomplishments and challenges.

The Moderna Plan has been schematically designed and pictured as a tree representing the quality of life to be achieved in Navarra having 7 transverse key factors as roots and the strategic axis and lines of actions as branches (Figure 10)

³⁴ <http://www.modernanavarra.com/>

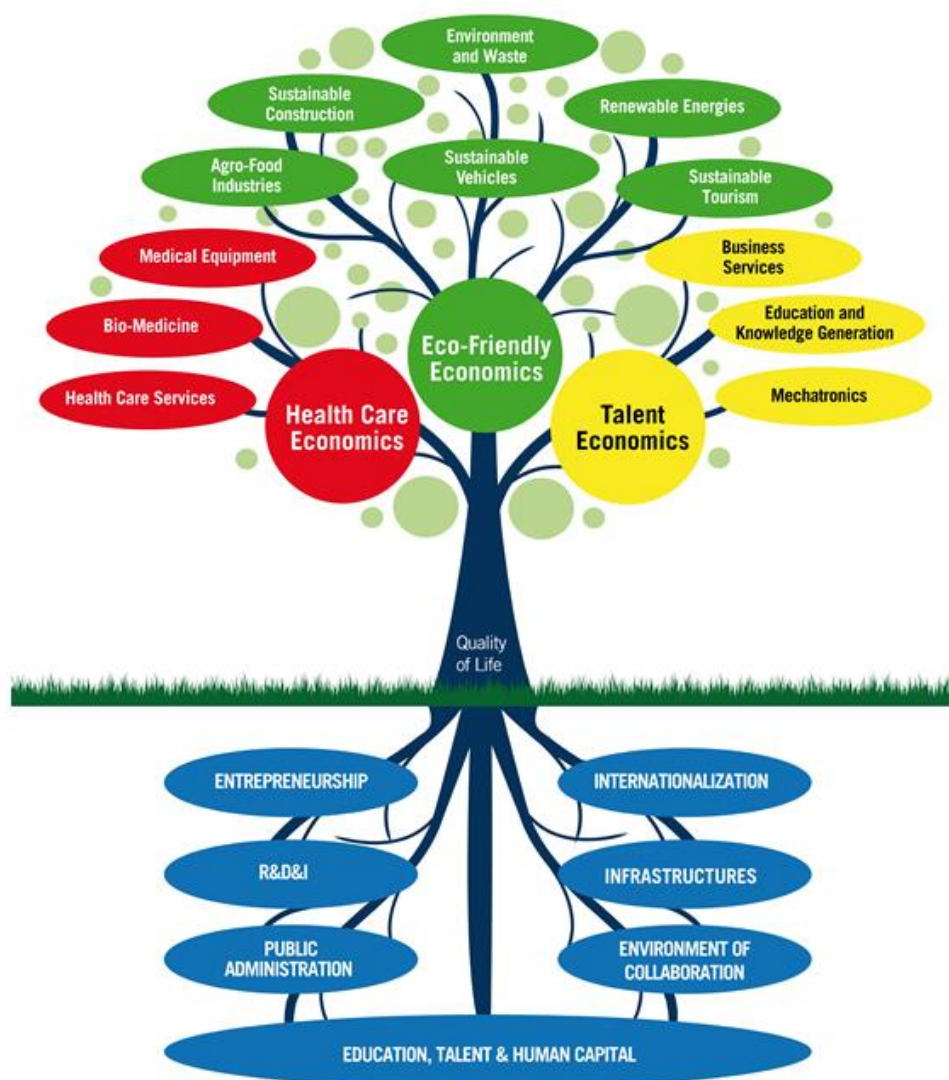


Figure 10: Representation of the Moderna Plan

Source: Moderna Plan³⁵

The Strategy comprises 3 economic axes, namely: green economy, health economy and talent economy. Each of these 3 axes is further developed into specific smart specialization fields. (12 priority clusters or branches)

The Moderna Plan has three overall objectives seen at the top of the Quality of life -tree:

- Improve quality of life and create more prosperity, by increasing the GDP per capita.

³⁵ <http://www.modernavarra.com/en/moderna-plan/>

- Improve Human Development Indicators (HDI) through top quality healthcare and an excellent education system.
- Achieve greater environmental sustainability.

5.5.2 Strategy

According to the Moderna Strategy the following actions should be envisioned:

- Reinvent and improve traditional industrial sectors: automotive, healthcare services and construction;
- Invest in the development of strategic sectors: renewable energies, food-processing;
- Support the development of emerging sectors: medical biotechnology, medical devices, mechatronics.³⁶

The overall objectives of the 4th Technology Plan are:

- To promote a balanced and sustainable development of the regional economy having in view the territory, the size of companies and the different sectors.
- To foster open innovation.
- To encourage regional competitiveness by promoting the socialization of science and innovation.
- To integrate the innovation system of Navarra on the European and international scale.

The overall picture of the 4th Technological Plan takes the form of an organic innovation ecosystem that sees the participation of various stakeholders towards the accomplishment of an innovation and knowledge-based area for the benefit of its society. (Figure 11)

The stakeholders involved are:

- Companies
- Universities
- Technological centres
- Government and Public Administration
- Society.

The Plan follows four strategic lines of action, namely:

- Development of an international high-level and market-oriented research, development and innovation (R&D+i) centre in Navarra
- Promotion and creation of technology-based enterprises (TBE).
- Systematic use of R&D+i as a competitive tool for the enterprises in Navarra.
- Promotion of social openness to the use of new products and services.

³⁶ <http://www.modernaNavarra.com/en/moderna-plan/>

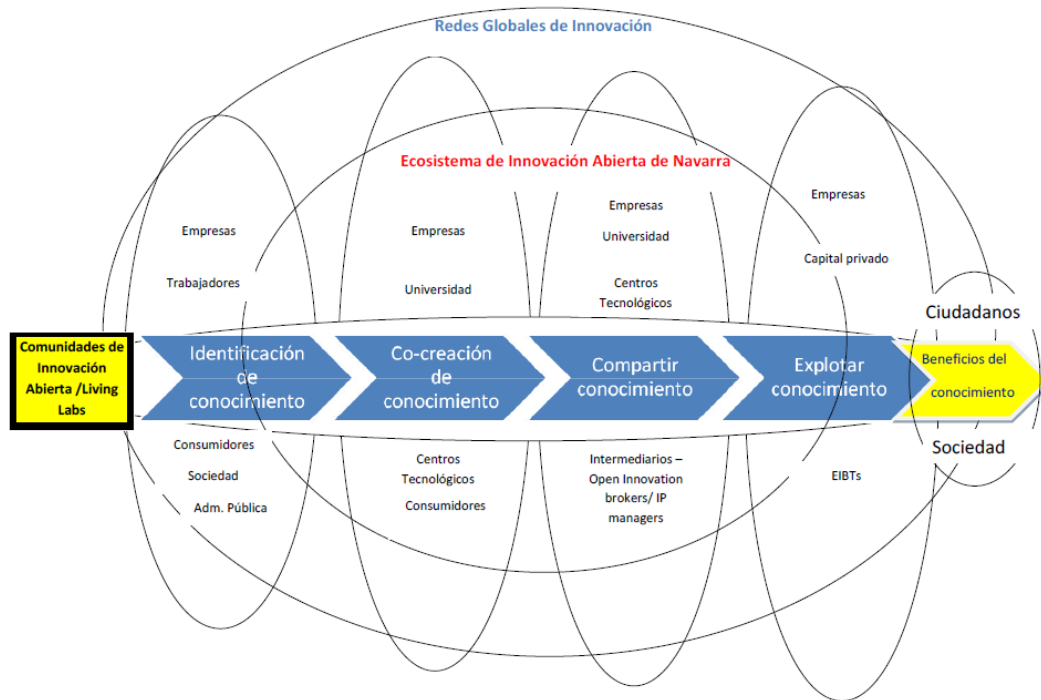


Figure 11: Representation of the Fourth Technological Plan of Navarra
 Source: Plan Tecnológico y de Innovación de Navarra 2012-2015 IV PTN

Fifteen instruments were defined for the accomplishment of the Plan’s objectives (Table 9).

Table 9. Instruments defined for the accomplishment of the Fourth Technological Plan of Navarra.

<p>Aid for projects</p>	<p>New possibilities for financing R&D+i projects are envisaged, especially project enhancing cooperation as a step to an open innovation system. Also, it foresees the incorporation of graduates in companies, research institutes and universities.</p>
<p>Integrated projects</p>	<p>An integrated project sets ambitious and strategic objectives for Navarra. It brings together a set of sub-projects towards a common goal, achieving not only a network of collaborations and knowledge transfer between the companies, research institutes and universities involved, but also an exchange and sharing of solutions, experiences and resources.</p>
<p>Technology bonds for SMEs</p>	<p>Technology bonds are an alternative and a supplement to the aids for contracting intensive knowledge services and to the aids for R&D+i projects in the pre-feasibility stages. They consist in an aid so that SMEs can contract, either directly or through intermediaries, knowledge and technology transfer services from technology centres and universities.</p>
<p>Aid for contracting intensive knowledge services</p>	<p>Intensive-knowledge services are services enabling an enterprise to better manage its R&D+i processes, starting from the identification of opportunities till the enhancement of its developments. These services include better access to scientific, technical and market knowledge, implementation of strategic tools, development of strategic R&D+i plans or increase of ICT use.</p>
<p>Business classrooms</p>	<p>Business classrooms promote the jointly conduct of research and teaching activities by enterprises, universities and vocational training centres. By means of the synergies created among these, innovative projects are expected to be developed.</p>
<p>Assessment for project detection</p>	<p>The assessment has in view funding services through specialised consultants to detect and develop projects in Navarrian enterprises.</p>
<p>Network of Innovative Technology-Based Enterprises</p>	<p>The network of innovative technology-based enterprises in Navarra is led by CEIN and represents an essential support in the configuration of entrepreneurial technology-based initiatives in Navarra. The purpose is to convert science and technology in Navarra in new innovative technology-based enterprises.</p>
<p>Support for promoters of innovative enterprises</p>	<p>The objective of this instrument is to support promoters of innovative enterprises to facilitate their management and enhance their growth, while also facilitating job creation.</p>

<p>Dissemination, awareness-raising and training</p>	<p>This instrument has in view actions such as maintenance of an innovation portal, information and awareness-raising days, newsletters and publications, innovation week, regional, national and international conferences and support to training for fostering innovation and R&D internationalisation. The objective is to spread the culture of innovation and a proactive attitude towards open innovation.</p>
<p>Agreements with stakeholders and networks/clusters</p>	<p>These agreements enable funding and supporting activities that foster cooperation towards the achievement of the Plan's goals in terms of R&D+i. They comprise different concepts such as technological monitor, mobility, training, intellectual property and necessary policies to increase innovation among R&D+i networks and stakeholders.</p>
<p>Innovative public procurement</p>	<p>This instrument has in view to explore and enhance the early acquisition of technology as an important tool for the development of innovation among different stakeholders of the system.</p>
<p>Mobility aid</p>	<p>This instrument enables mobility of stakeholders by means of agreements with technology centres and research groups. The mobility concept under this instrument has three configurations:</p> <ul style="list-style-type: none"> ▪ mobility of researchers facilitating their welcome and stay in other high-level centres or networks ▪ mobility of staff among centres and enterprises in Navarra ▪ international talent attraction
<p>Multi-stakeholders roundtables</p>	<p>These roundtables are involvement bodies, means of sharing experience and practice, of detecting mutual challenges and priorities and defining cooperation opportunities for developing common interest projects for enterprises. It should be a platform of communication between enterprises, government and technology stakeholders, as a means to foster business innovation.</p>
<p>Open innovation space</p>	<p>In 2011, Navarra Factori was inaugurated as a high-performance centre in applied creativity and innovation. Within this centre, there are developed and promoted activities and services for students, professionals and individuals interested in developing creative skills and competences. This is a tool meant to involve the society as a whole as active participant in innovation processes and to disseminate a culture of applied creativity and innovation.</p>

Internal projects	These projects aim at improving the assessment methodology of innovation policies so as to further redefine and implement new instruments. They may take the form of pilot projects for implementing good practices selected by means of trans-regional benchmarking or originate after multi-stakeholders roundtables.
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Source: Plan Tecnológico y de Innovación de Navarra 2012-2015 IV PTN

5.5.3 Project examples

According to the Moderna Plan below some of the projects envisaged in Navarra are illustrated as examples:

Table 10. Examples of projects envisaged in Navarra.

Project title	Project brief description
Strengthening Plan of the pig sector of Navarra	Launch of actions that will strengthen the pig sector in Navarra, and will enable it to be more competitive on a globalised market.
Strategic Plan of the Construction Sector in Navarra	Energisation of the Construction sector of Navarra to work towards identifying and launching actions that will lead to Sustainable Construction and to the execution of a sectorial Strategic Plan.
Internationalization of Water Management	Energisation and launch of a public-private consortium which, using the leverage of the know-how and expertise accumulated in Navarra can internationalise water management in new markets.
Biomedicine in Navarra Catalogue	The skills, competences and contacts of 26 enterprises, technology centres, universities and public and private agents that make up the Biomedicine Cluster in the Regional Community are included in this sales catalogue of the Biomedicine Sector.
Patient attraction plan	Patient attraction pilot by private medicine for a certain type of pathologies, linking each typology to a type of adapted tourist offer.

Source: Fundación Moderna³⁷

³⁷ <http://www.modernanavarra.com/en/projects/>

On the other hand, as part of the Moderna plan, the European Investment Bank (EIB) is providing a total loan of 250 million Euros to finance projects in the industry and services sectors, as well as research, development and innovation undertaken mostly by SMEs with less than 250 workers. This projects aims at stimulating entrepreneurship and job creation by SMEs. Under the cooperation, Sociedad de Desarrollo de Navarra, S.L. (SODENA) passes on the funds to national and regional intermediary banks which then lend them to the final beneficiaries. The eligibility relies on the alignment of candidate projects with one of the strategic lines of the plan.

6 HIGHLANDS AND ISLANDS

Highlands and Islands is a region in Northern Scotland, comprising the Scottish Highlands, plus Orkney, Shetland and the Western Isles.

The region stretches for over 640 km from Shetland in the north, to Campbeltown at the southern tip of Argyll. It has a total land area of just over 39,050 km² and a coast line of over 9,000 km.

With a population of around 360,000 the Highlands and Islands is one of the most sparsely populated regions of the European Union (Table 11). Its population density is of just 9 persons per km², compared with an EU average of 116 per km², the Scottish average of 64.8 and the UK figure of 242.4. Moreover, the population is sparsely distributed. In addition to a very low population density, 23% of the population of the Highlands and Islands (some 99,000 people) sparsely live on more than ninety inhabited islands.³⁸ 61% of residents live in rural areas or settlements of fewer than 5,000 people.

On the other hand, areas with larger population density include the inner Moray Firth (Nairn, Inverness, Dingwall, Alness and Invergordon) that contains approximately 70,000 people, nearly 20% of the region's population, while Inverness is the largest settlement with more than 40,000 people.

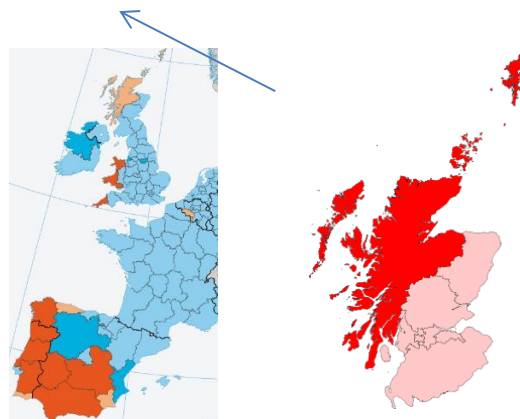


Table 11. General data on the Highlands and Islands

Area	39,050km ²
Coastline	9,000km
Population	360,000 inhabitants
Density of population	9 persons per km ²

Source: The Scottish Government

6.1 Economic context

The overview of the Highlands and Islands' economy illustrates that its core activities are mostly in the public administration, education and health (32.8%) followed by distribution, hotels and restaurants (24.9%), manufacturing (8.9%), construction (6.9%), transport and communications (6.1%), agriculture and fishing (2.3%), and other services (5.5%). The figure below illustrates the distribution of employment by sector in the Highlands and Islands region in 2008. (Figure 12)

³⁸ <http://www.scotland.gov.uk/Publications/2008/07/29142448/16>

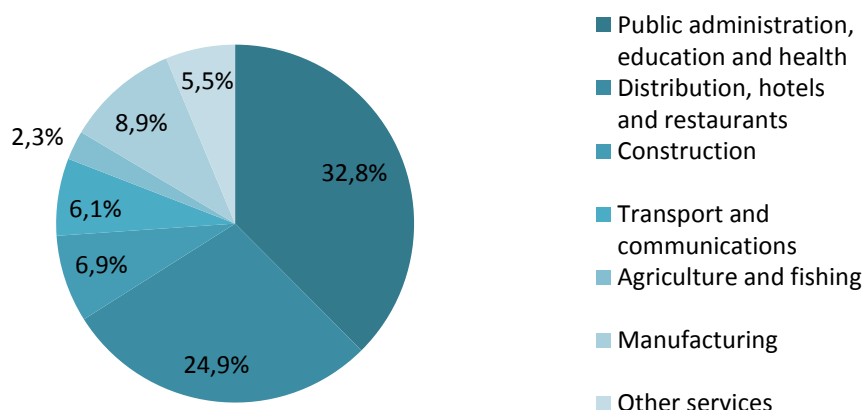


Figure 12 Distribution of employment by sector
Source: Annual Business Inquiry (NOMIS)

The GDP per capita in 2008 in Highlands and Islands was €10 068. In terms of GDP per capita related to PPS (purchasing power standard), in 2008 the Highlands and Islands presented a value of 87, below the EU27 average of 100.³⁹

It is worth noting that if before Highlands and Islands was a convergence region of the European Union, presenting a per capita gross domestic product (GDP) less than 75% of the average GDP of the EU, due to the policies and strategies implemented in the past years it succeeded reaching the phasing-out state, which means its per capita GDP surpassed 75% of the EU average.

6.2 Research and Development

The region of the Highlands and Islands comprises one university, the University of the Highlands and Islands (UHI) that operates across the region through a partnership of fifteen colleges and research institutions (Academic Partners). It also comprises one Research and Innovation Hub that focuses on the following research themes:

- Environmental science
- Marine science
- Energy
- Celtic and Nordic studies
- Health
- Archaeology
- Rural childhood and development
- Tourism and heritage
- History

³⁹ http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/1-24022011-AP/EN/1-24022011-AP-EN.PDF

Out of the Academic Partners, it is worth highlighting the internationally recognized centre of expertise in marine environmental science, the Scottish Association for Marine Science - SAMS, Scotland's oldest oceanographic organisation.

The research activity of the centre is focused on 4 main themes:

- Research Theme 1: Arctic Seas
- Research Theme 2: Dynamic Oceans
- Research Theme 3: Marine Renewables
- Research Theme 4: People & The Sea

The Centre has drafted a Strategy for the period 2013-2018 that aims to achieve the following goals:

- to deliver cutting edge research into marine systems science, focused on mid and high latitude coastal, shelf seas and adjacent ocean basins;
- to apply this fundamental understanding to areas of topical relevance such as marine renewable, aquaculture and mining;
- and to provide evidence based advice on marine governance to key national and international policy makers.⁴⁰

Also, SAMS' expertise has led to the creation of a bio-incubator space, the European Centre for Marine Biotechnology, a marine-focused cluster that at present reunites several institutions and businesses such as Aquapharm Biodiscovery Ltd., Culture Collection of Algae and Protozoa (CCAP), GlycoMar and the Scottish Association for Marine Science (SAMS), employing over 135 scientists and leading many national and international research programmes.

Given the expertise in life and marine sciences, the region is further envisioning developing the European Marine Science Park alongside SAMS, the first built science park in the region and expected to draw more life science activity in the area.

Moreover, another marine centre of the Highlands and Islands University is the NAFC Marine Centre with the mission of supporting Shetland's marine industries through applied research and development, training, education and innovation.

It is also worth emphasizing the activities of the Marine Science and Technology Department that include the following: Aquaculture Development, Fisheries Science, Marine Spatial Planning, Marine Policy and Advice and Marine Development.⁴¹

On the other hand, the Highlands and Islands region hosts a renowned centre offering test facilities for developers of wave and tidal energy devices. The European Marine Energy Centre (EMEC) in Orkney comprises grid-connected marine energy converters with developers from all around the world, making the Centre acknowledgeable for setting international standards for marine energy.

⁴⁰ <http://www.sams.ac.uk/sams-science-strategy/sams-science-strategy-2013-18>

⁴¹ <http://www.nafc.ac.uk/Home.aspx>

6.3 Key regional assets

The Highlands and Islands region boosts itself with a **diversity of beautiful landscapes** that present a rich marine, wind and forest resources. Also, the region has a large scope of natural heritage sites and a rich biodiversity for which many areas were included in the Natura 2000 series under the EU Birds and Habitats Directives. Also, the region includes some of the most **diverse hydrological conditions** in the United Kingdom, and by far the largest proportion of the surface freshwater resources.

The superb landscape and culture attract many tourists and create opportunities in areas including golf, adventure tourism, yacht sailing and inland cruising, **marine wildlife** and sightseeing tours. Furthermore, according to a Tourist Attitudes Survey 7 in 10 visitors to Scotland specifically visit areas in the Highlands and Islands and mention as main attraction the landscape, countryside and scenery. It is also important to highlight the role of marine tourism as a key growth industry driver, reaching more than £100m annually.

On the other hand, the cultural heritage shapes the identity of the region, as it entails a unique blend of Gaelic, Scots and Nordic cultures.

As a consequence, tourism plays an important role in the region, ensuring employability levels and attracting new investments. Annual gross output of the sector is estimated at around £735m, a level maintained despite the global recession.

As also highlighted in the previous section, another sector that puts the region in the upfront is the **renewable energy and life sciences** sectors that are continually developing and attracting investments.

For example, the Pentland Firth, to the north of Caithness, and the waters around Orkney form one of the world's best marine power resources. Together, they cover six of the top ten tidal energy development sites in the whole of the UK and it is the first site in the world to be opened up for large-scale, commercial tidal and wave energy development. Seabed owner The Crown Estate expects it to be generating at least 700 megawatts by 2020.⁴²

On the other hand, the region has registered **high levels of self-employment** and lower levels of unemployment compared to the rest of Scotland. The high levels of self-employment reflect the region's inclination towards agriculture/crofting, fishing, building trades and small scale tourism, while the low level of unemployment is due to the fact that most of the activity falls under the public sector.

6.4 Main regional challenges

Among the region's inconveniences, its geographical location may set it back as an isolated area of the continent. To this, mainly **rural and dispersed settlements** and a **low population density** make the delivery of services a challenging factor.

On the other hand, the region registers a tendency towards an **ageing population** as young people leave the region behind to seek employment opportunities elsewhere. In terms of economy activities, one of the weaknesses of the region is the low number of enterprises, as not many are attracted in the region due to limited commercial opportunities and difficulties in provision of services. In this

⁴² Operating Plan 2012-2015, Highlands and Islands Enterprise

sense, the **fragile areas**, comprising mainly the islands and the west coast and covering around 13% of the total population, face challenges that are subject to be counteracted by sustainable actions under the Operational Plans of the region. Among the problems to be faced in the fragile areas it is worth mentioning the **population decline**, little proportion of young population, few economic opportunities, transport and **services difficulties** and below average income level.

6.5 Basis for the Smart Specialization Strategy

Although the Highlands and Islands region has not yet developed a Smart Specialization Strategy per se, the region has proved to be a model for developing plans and strategies centred on its core activities. These have led to a considerable development and a growing importance of the region and have contributed to the region's upgrade from a convergence region to a phase-out region. In this section the main Plans and Actions will be further analysed.

It must be highlighted that the main actor aiming to stimulate the regional innovation system is the Highlands and Islands Enterprise. The Highlands and Islands Enterprise (HIE) is the Scottish Government's economic and community development agency that strongly acts as an innovation policy driver in the region. Its priorities, measures and policies will be further developed in the sections below.

6.5.1 Process

As a response to the Scottish Innovation System, Highlands and Islands Enterprise initiated a Science and Innovation Strategy Consultation as a means to link science and innovation under a policy framework shaping themes for the science base and business. The scope of the HIE is to place Highlands and Islands under the scope of the same goal as the whole Scotland, namely heading towards building the Science Nation.

Six general themes were set out, that mean to match the *“20 year aspirations to grow the population to 500,000 inhabitants, to create 20,000 full-time equivalent jobs, to raise income levels by 10-15 percent in real terms, and to become part of the international shop window for A Smart Successful Scotland”*. These themes are the following:

Theme 1	Maintaining and developing the excellence of the science research base
Theme 2	Enhancing international connections and capturing overseas investment
Theme 3	Intensifying knowledge exchange between academia and business
Theme 4	Expanding business innovation
Theme 5	Modernising science education and promoting science careers
Theme 6	Increasing public engagement with science

On the other hand, the Highlands and Islands Enterprise is on a constant basis developing plans and strategies for specific periods of time and targeting different region's needs and challenges.

In this regard, it is worth noting that HIE sets specific aims for 2020 in its current Operational Plan. Thus, HIE aims to set the Highlands and Islands region as:

- An international centre for marine renewables
- A digital region
- Home to more growth businesses operating in international markets
- Recognised internationally for digital healthcare and marine science expertise
- Characterised by dynamic, sustainable communities
- A globally-connected region
- An attractive region for young people

In meeting these goals, HIE set several priorities that shall be discussed within the section below.

6.5.2 Strategy

As aforementioned, the Highlands and Islands Enterprise (HIE) is the main agency driving research and innovation development into the region. Its aim as set in its Strategy "Smart, Successful Highlands and Islands" is "to enable people living in the Highland and Islands to realize their full potential on a long-term sustainable basis" and encapsulates its priorities within an interconnected environment with the sustainable development at its core, as it can be seen in the figure below. (Figure 13)



Figure 13 Interconnected environment for Smart, Successful Highlands and Islands

The organisation has the following priorities:

- **Supporting businesses:** Key areas of focus being Account management, International trade and investment and Innovation, entrepreneurship and leadership;

- **Developing growth sectors**, particularly distinctive regional opportunities: Energy, Life sciences, Marine renewables, Food and drink, Creative industries, Tourism, Business services, Universities;
- **Creating a competitive region**: Creating the conditions for a competitive and low carbon region, creating a digital region;
- **Supporting communities**: Strengthening communities and fragile areas: focuses on 3 main priority activities: assist social enterprises, support arts and culture, tackle challenges in fragile areas.

Therefore, the Highlands and Islands Enterprise operates in support of scientific research, innovation and business development and it also sets out multi-annual business plans and strategies for the region. The last Operational Plans cover the periods 2011-2014 and 2012-2015 respectively and set out its purposes, vision and priorities for the related periods.

In the context of innovation policies, the specificity within the Highlands and Islands region is the special focus on “people and skills”, by means of measures to attract skilled graduates and support the regional enterprises. It is worth mentioning in this sense the Graduate Placement Scheme – the ScotGrad, the largest innovation policy measure took in 2011 that aimed at integrating fresh graduates in businesses and social enterprises. The Programme was drafted in close interaction with the Highlands and Islands Enterprise (HIE) namely in terms of operating the account management.

This Programme is considered a successful regional innovation policy as placement of the graduates depends on the innovative projects to be conducted that would be equally beneficial to the graduates, the business growth, as well as to the community development.

Furthermore, the current Operational Plan of HIE covers a three-year period (2012-2015) and centres around four broad priorities that are also aligned with the priorities and actions set out in the Government Economic Strategy (GES).

The Plan is refreshed annually and centres on four broad priorities meant to trigger sustainable economic growth⁴³:

Priority 1	Supporting businesses and social enterprises to shape and realise their growth aspirations
Priority 2	Strengthening communities and fragile areas
Priority 3	Developing growth sectors, particularly distinctive regional opportunities
Priority 4	Creating the conditions for a competitive and low carbon region

Also, the priorities of the Plan aim to have an impact on a longer term, therefore global 2020-targets are envisaged, such as striving to place the Highlands and Islands region as:

⁴³ <http://www.hie.co.uk/about-hie/policies-and-publications/operating-plan.html>

- An international centre for marine renewable and marine science expertise;
- A digital, globally-connected region;
- An internationally recognised region for digital healthcare;
- An attractive region for young people, comprising dynamic, sustainable communities;
- An attractive region for more businesses operating in international markets.

The first priority is targeted on three main areas, namely:

- Account management – which entails support offered to business in order to meet their specific needs and trigger sustainable growth.
- International trade and investment – support businesses in their internationalisation strategies, helping them to expand their activities abroad, thus contributing to the Government Economic Strategy’s target of delivering a 50% increase in the exports value.
- Innovation, entrepreneurship and leadership – support a culture of entrepreneurship and leadership within the region through different Business Mentoring Programmes in collaboration with different universities, institutes and entities (such as UHI, Massachusetts Institute of Technology, the Scottish Chamber of Commerce etc.)

The second priority has in view the social component of the region and support activities that lead to:

- community-led development
- enabling social enterprise that contributes to community wellbeing
- strengthening the fragile areas
- investment in arts and culture, reinforcement of the region’s cultural heritage and identity.

The third priority identifies seven sectors of particular importance in the region, as future drivers for sustainable growth, namely: Energy, Life sciences, Food and drink, Creative industries, Sustainable tourism, Financial and business services and Universities.

As Energy is clearly the major driving sector in the region, investments are being directed towards the emergence of an excellence leader region in the field. In this regard, it is also worth highlighting the National Renewables Infrastructure Plan that sets out stages for the construction and development of offshore renewables industries (wind, wave and tidal). Within this plan, the development of infrastructure for the wave and tidal sector falls under the Highlands and Islands region, with the development of facilities in Pentland Firth and Orkney Waters area.

In terms of Life sciences, the region already hosts Scotland’s largest life sciences employer and additional investments are fueled towards achieving state-of-the-art facilities and strong research and development, with the development of the Inverness Campus and the European Marine Science Park for example.

The fourth priority aims to create the conditions to place Highlands and Islands as a competitive and low carbon region. This implies striving to create a digital region with modern digital connectivity, access to high quality and affordable broadband services. In this sense, the Digital Highlands and Islands project aims to provide high speed digital connectivity, next generation broadband (NGB) that would enable fragile communities to get easier access to services, whilst also enabling new forms of remote working or remote education opportunities across the region. To this end, HEI has developed a £126.4 million public investment project, which is part of a larger plan to bring NGB to all by 2020 and that will increase coverage across the region to up to 84% of premises.

Finally, projects such as the Inverness Campus, the European Marine Energy Centre (EMEC) and the European Marine Science Park among others, aim to trigger the region development and position it as a leader region in the UK, and the EU and attract international recognition in strategic fields such as renewable energy and life sciences.

6.5.3 *Project examples*

This section briefly illustrates some project examples in sectors with high potential in Highlands and Islands: the marine and maritime sector and the life science sector.

First, it is worth mentioning the main projects in the maritime sector that aim to deliver international recognised solutions for sustainable energy support.

The **Environmental Research Institute (ERI)** in Thurso, the most northerly town in mainland UK, was created in 2000 as to research one of the most unique environment and ecosystem and to address environmental issues through innovation and excellence. One of the core research areas of the institute is renewable energy, but it also comprises, among others water quality, environmental sensitivity, climate change, ecology and ecosystems, natural products, and involves academics, researchers and stakeholders from all over around the world. The Institute seeks to place itself as an international setpoint of standards and as a recognised centre of excellence in the environmental sciences.

The **European Marine Science Park** is located in the proximity of the town Oban, also known as “The Gateway to the Isles”, and aims to position itself as a preeminent excellence hub in the energy and life science sector. The Science Park is being developed by the Highlands and Islands Enterprise in partnership with Scottish Development International and the Scottish Association for Marine Science (SAMS) and provides suitable locations, facilities and resources to become a leader cluster in the marine sciences-related activities. It offers co-location with SAMS and thus it is an integrating part of a marine sciences cluster that brings together research, business and education.

The **Inverness Campus** is another project developed under the coordination of the Highlands and Islands Enterprise and aims to bring together business, research and education organisations towards an innovative life science-focused development. The Campus will entail an innovation science park for private sector research and development, but also business incubation units that together will boost the employability and economic growth of the region.

It is a long term investment meant to attract additional investors along the way. It is expected to generate £38 million annually for the regional economy and that the first phase could attract investment of more than £100 million. With already a track in life science sector, the Campus will build on and collaborate with the adjacent Centre for Health Science, the Raigmore Hospital and Johnson & Johnson. It will include a base for the new University of Highlands and Islands (UHI) as well as other academic partners and National Health Service (NHS) activities. The linkage with the commercial sector will be assured by the presence of related businesses interested to be located at the heart of this life science hub.

7 LESSONS LEARNED

Considering the selected regions, their assets, challenges and processes developed, there are different aspects that may be highlighted as guidelines and orientation for the process of development of the Smart Specialization Strategies of the Azores. The analysis of these lessons is presented as follows and organized in the following topics:

- The relevance of cluster initiatives for the definition of the strategy;
- The priority to bridge the gap between University and Business;
- The importance of pilot projects as demonstrators;
- The process of building on regional assets;
- The need for a steady long-term regulatory framework;
- The challenge of mobilisation and the balance of the top down and bottom up approaches.

The relevance of cluster initiatives for the definition of the strategy

In the selected regions, the existence of organized cluster initiatives can be considered to be of significant importance for the definition and implementation of the smart specialization strategy. This fact is particularly evident in the case of Navarra and the Balearic Islands, where clusters were considered as relevant actors of the strategy. In these regions, the clusters ability to mobilize the stakeholders and to support the cooperation between different actors was considered relevant to the process of developing the strategy.

Furthermore, cluster initiatives are considered to be particularly active in the process of identification of competitive advantages and priorities and proposing specialization patterns. In fact, it can be stated that Clusters are an indicative reflection of the current and potential regional specialization pattern. For instance, in the case of the Balearic Islands it is notorious that around the Tourism Cluster (BALEARST) several intersectoral cooperation activities were developed, considering the clusters of the Sea Technologies, Creative Industries or the Information and Communication Technologies. In Navarra, the mobilisation process involved different stakeholders organised in specific clusters, such as agribusiness, automotive, environment, or tourism.

The priority to bridge the gap between University and Business

The 5 considered regions share a common understanding that Smart Specialization is a tool to bridge the gap between University and Business. It is notorious that the efforts to develop the strategy involved Universities in the region first as research centres and second as stakeholders to build a culture of innovation and to promote innovation initiatives as competitive factors in the business environment.

Furthermore, it is worth mentioning in this sense the projects conducted in Navarra by the Public University of Navarra and other 3 universities that were granted the title of “International Excellence Campus” and in Galicia, the University of Santiago de Compostela and the University of Vigo that were granted the International Excellence Campus: Campus of Life and Campus of the Sea, respectively.

On the other hand, all the plans clearly state as objective the reinforcement of the linkage between universities and business. For example, in Martinique, one of the Plan’s axes refers to reinforcing the training connection between research and businesses.

In the Highlands and Islands case study it is clearly highlighted the significant role that the Highlands and Islands Enterprise assumes on promoting matching and linking activities between research institutions and regional companies, in order to promote innovation and competitiveness.

Furthermore, one of the instruments to achieve the Navarra's Plan includes business classrooms as a means to promote the conduct of research and teaching activities by enterprises, universities and vocational training centres. It is believed that by creating synergies among these, innovative projects are to be developed.

The Galician Plan also clearly sets as one of its measures the strengthening of research within the university environment, especially regarding its application to the business environment.

The importance of pilot projects as demonstrators

As stated in the RIS3 Guide⁴⁴, pilot projects constitute the main tools for policy experimentation and allow testing unprecedented mixes of policy measures at a small scale, before deciding on implementation at a larger and more expensive scale.

All the regions considered in this benchmarking exercise decided for the implementation of pilot projects that could have demonstrative effects for the community. In these cases, the projects that were presented were a form to involve in the implementation of the strategy local business and academic leaders

For instance it can be mentioned the case of Martinique the project of the Development of a Regional Centre of Aquaculture in Martinique that included stakeholders such as the Fish Department, IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer) or the ADEPAM (Association pour la Défense des Producteurs Aquacoles Martiniquais).

The pilot projects are considered to be key elements to maintain the active engagement of the business community. At the same time, it is important to highlight that they are a demonstrator that the strategy is going to be concretely implemented rather than remaining a concept.

The process of building on regional assets

Smart Specialization processes are intended to build on specific regional assets. These can assume different types, such as the existence of key capabilities (incl. specialized skills and pool of labour), the existence of critical mass and/or critical potential within a sector, or the assumption by the region of a relevant international position as a local node in global value chains.

The regions considered developed a comprehensive analysis of their capabilities and the strategies developed focus on their particular assets. For instance: it is clear that Martinique intends to consolidate the strong sectors driving the economy: tourism and agriculture. It also is to highlight the case of the Balearic Islands that is centring its activities in its main economic driver: tourism. It is also worth underlining the efforts the Balearic Islands puts into exploring its resources and connecting tourism with other sectors. Also the case of Galicia that is centring its activities in the priority sectors: agriculture, sea and tourism and the Highlands and Islands assumes tourism and sea as priority areas for the region.

⁴⁴ Guide to Research and Innovation Strategies for Smart Specialisation (RIS3), Smart Specialisation Platform, 2012

In all the mentioned areas it is important to underline that the main challenge is how to promote innovation in the considered “traditional sectors”.

The need for a steady long-term regulatory framework

It is considered to be relevant that the process of developing a RIS3 shall build on previous exercises of strategy development implemented in each region.

In this aspect Navarra offers an excellent example of good practice on how it succeeded in creating a steady regulatory framework to promote and co-finance R&D activities in the region by the Innovation Department of the Government of Navarra. The framework was regularly updated by taking the form of the First, Second, Third and now Fourth technological Plan of Navarra which proves its commitment to development and its strive for progress. It shows how a region has succeeded in focusing its attention in developing its innovation strategies towards a continuously progress: Navarra is considered to be one of the most innovative regions in Europe.

The described process of the Balearic Islands can also be considered as an example, where the RIS3 process builds on successive strategies and plans: I R&D Plan (2001-2004), I Innovation Plan (2001-2004), I Innovation Action INNOBAL XXI (2002-2003), II Plan for Science, Technology and Innovation (2005-2008), II Innovation Actions SAITUR (2005-2008), and III Plan for Science, Technology and Innovation (2009-2012).

The challenge of mobilisation and the balance of the top down and bottom up approaches

As detailed in the RIS3 Guide, “priority setting in the context of RIS3 entails an effective match between a top-down process of identification of broad objectives aligned with EU policies and a bottom-up process of emergence of candidate niches for smart specialisation, areas of experimentation and future development stemming from the discovery activity of entrepreneurial actors”.

In this sense, all four regions are good examples for achieving a broad mobilisation of stakeholders. This is reflected even by the graphic representations of the strategies. For example, Navarra’s strategy takes the form of an organic tree of life that has the key factors and stakeholders involved as roots and the lines of actions to be approached as branches.

Likewise, the Balearic Plan has an organic and complex system revolving around the manager entity of the Plan (the General Directorate for Research, Technological Development and Innovation), as the catalyst entity engaging the other stakeholders. Also, the representation of the clusters reflects the mobilisation of stakeholders in different clusters in interconnection with the main cluster, Balearst.